Naval Education and Training Command

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Training Manual (TRAMAN)

Mess Management Specialist 3

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Naval Education And Training Program Management Support Activity

MESS MANAGEMENT SPECIALIST 3

NAVEDTRA 10090

1990 Edition Prepared by
MSCM Robert K. Rhodes

THE UNITED STATES NAVY

GUARDIAN OF OUR COUNTRY

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

WE SERVE WITH HONOR

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

THE FUTURE OF THE NAVY

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

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CHAPTER 1

INTRODUCTION TO THE MESS MANAGEMENT SPECIALIST RATING

Mess Management Specialists (MSs) are assigned to a wide variety of challenging billets both at sea and ashore. Most MS personnel begin their careers in foodservice as cooks or bakers in either the general mess or in one of the private messes. Others may begin their careers by performing functions associated with the management of officers' quarters afloat or bachelor quarters complexes ashore.

High-quality foodservice and adequate living conditions are military requirements of the highest priority that directly affect the capability of the unit to perform its mission. As an MS, you are responsible for providing service directly to both officer and enlisted personnel. Good service is an indication of capable, knowledgeable, and interested personnel that are proud of their services and care about the personnel they serve.

This chapter will assist you in becoming familiar with the following:

- Identifying the role of the MS in the Navy
- Recognizing the organization of the general mess, private mess, and quarters afloat and ashore
- Identifying the mission of the general mess, private mess, and quarters afloat and ashore
- Recognizing the duties and responsibilities of the MS
- Recognizing the importance and function of the Navy Ration Law
- Recognizing the responsibilities assigned to various officers
- Identifying the basic references that may be used to explore MS advancement opportunities and career paths

ORGANIZATION

To become a part of the organization to which you are assigned, you must understand the mission, lines of authority, and your responsibilities within that organization. See figures 1-1

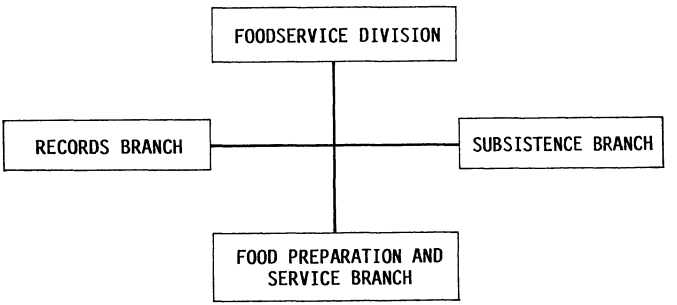

Figure 1-1.—Standard foodservice division organization.

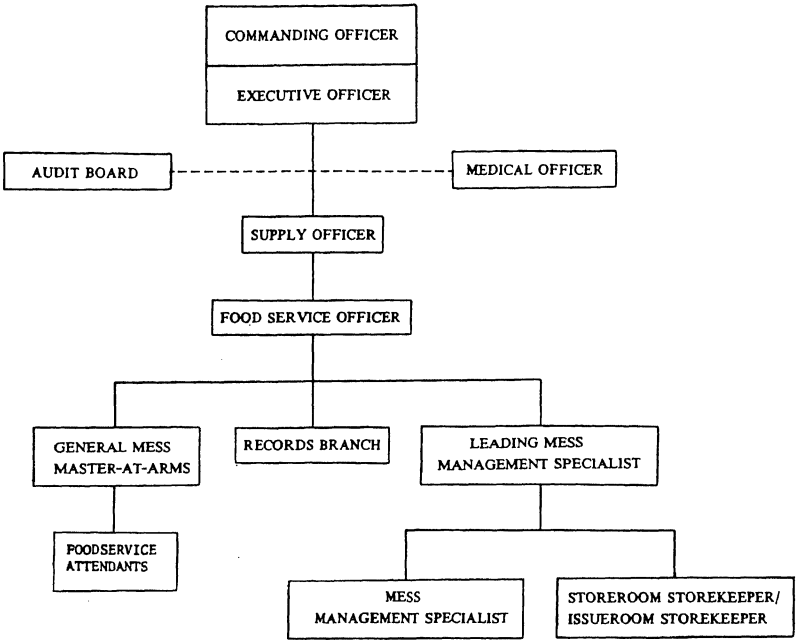

Figure 1-2.—Line of authority chart.

and 1-2 that show a typical organization of a foodservice division and lines of authority respectively.

GENERAL MESS

For about the first 100 years of the Navy's existence each small berthing area of 10 to 20 men ran its own mess. Since written recipes were rare, each mess was dependent on its cook's initiative. During this period of time, fresh meat, dried fruits, and vegetables were added to the normal menu of salted horse, beans, and hardtack. However, this bit of progress was not without its price because the daily half pint of rum was lost forever.

Around 1900, the Supply Corps took up the challenge of improving shipboard subsistence. The results were the establishment of the Navy cookbook that eventually became the *Armed Forces Recipe Service* and the consolidation of several small messes into the general mess. Rapidly following these developments were the introduction of the self-service cafeteria system and the design of integrated messdeck areas.

Today's general mess has modern cafeteria-style equipment to keep food at the proper temperature and an agreeable environment in messing areas designed similar to civilian establishments. Today's menus are designed to accommodate a variety of traditional foods, low-calorie foods, special events, and fast foods. Large ships such as aircraft carriers have complete fast-food operations that sometimes rival civilian fast-food operations.

Since the establishment of the general mess, the progress has been measured by well-directed competition. The Ney Memorial Awards program is held annually to determine the best messes afloat and ashore by category. This program has

resulted in a higher level of command interest in general mess operations, and has instilled the individual MS with a pride and a desire to gain recognition for his or her station by winning a Ney award.

Mission

The purpose of the general mess is to provide Navy enlisted members with wholesome nutritional rations-in-kind by proper preparation and service of the daily food allowances authorized by the Navy Ration Law and the Department of Defense Food Cost Index.

Navy Ration Law

The present Navy Ration Law was enacted in 1933. This law specified the actual quantities of food each person was to receive daily. These quantities have now been converted into cash equivalencies from which monetary ration allowances are determined. These allowances are computed from the quantitative food allowances prescribed by the Department of Defense Food Cost Index that is based on food items authorized by the 1933 Navy Ration Law. Thus, a certain weight of a food item (such as 10 ounces of fresh vegetables) was converted to a monetary allowance.

Officer Responsibilities

The commanding officer, executive officer, medical officer, supply officer, and food service officer have certain responsibilities regarding the operation of the general mess. Their duties are outlined in the following paragraphs.

COMMANDING OFFICER.—Commanding officers are responsible for the overall administration of the general mess. They are responsible for the morale, health, and welfare of the crew. The commanding officer designates an officer to be present and to sample each meal and report if there is any cause for complaint on the quality, quantity, or service of the food. The commanding officer establishes the meal hours according to the routine of the command. In emergency situations the meal hours may be changed by competent authority, normally the officer of the deck or the command duty officer. When this occurs, the commanding officer, supply officer, and food service officer will be notified.

EXECUTIVE OFFICER.—The executive officer is responsible for the following:

- Assigning a messdeck master-at-arms from departments other than the supply department to the food service officer, usually for 90 days

- Detailing foodservice attendants for duty in the general mess for a recommended period (normally 90 days)

- Notifying the food service officer of any significant changes in the number of personnel to be fed the following day (this duty may be delegated to the personnel officer)

MEDICAL OFFICER.—The medical officer or designated representative is responsible for the following:

- Performing a fitness-for-human-consumption inspection upon receipt of food items from commercial sources

- Examining foodservice personnel (MSs) for physical appearance and state of health

- Examining foodservice attendants for physical appearance and state of health

- Assisting in the planning and administration of training programs for foodservice personnel in personal hygiene, sanitation, and safety

- Exercising surveillance of sanitation of foodservice spaces and equipment

- Exercising constant surveillance over the sanitary aspects of food preparation and service

- Being available to inspect food items if there is any doubt as to their fitness for human consumption

SUPPLY OFFICER.—The supply officer is the senior Supply Corps officer assigned to supply duty at the command. On some small ships or stations there may be only one Supply Corps officer assigned. At larger commands there may be several Supply Corps officer assistants. The mission of the supply department is to provide customer service and support to the command.

The services provided by the supply department are as follows:

- Material support functions including receipt, storage, issue, and accounting for consumables, equipage, and repair parts

- The operation of the general mess

- The operation of private messes afloat

- The operation of the ship's store, retail clothing store, vending machines, laundry, and barbershop afloat

- The operation of the disbursing office for the purpose of disbursing government funds

Activities With Supply Corps Officers.—The supply officer is responsible for the following:

- Procurement, storage, and rotation of food stocks to support the general mess

- Sale and transfer of food items

- General supervision of foodservice operations

- Preparation of instructions prescribing foodservice safety precautions, sanitary regulations, and equipment operating instructions

Activities Without Supply Corps Officers.—Aboard ships without Supply Corps officers, the commanding officer will designate, in writing, an officer to act as the supply officer, and will further designate, in writing, an officer to act as the food service officer. The supply officer and the food service officer may or may not be one and the same; however, the officer designated as the food service officer will be financially accountable and, while serving in this capacity, the duties of the supply officer as food service officer will be identical to those of a commissioned Supply Corps officer.

FOOD SERVICE OFFICER.—The food service officer is responsible to the supply officer for the proper and efficient operation of the general mess. While serving in this capacity, the food service officer is responsible for the following:

- Maintaining sufficient quantities of food items to meet normal operating requirements and making sure that food items are issued before reaching the end of their normal storage life

- Accounting to the government for all subsistence items received at the general mess and maintaining this accountability by following established inventory procedures listed in *Foodservice Management*, NAVSUP P-486, volume I, chapter 8

- Preparing instructions to foodservice personnel covering operating instructions for equipment, safety procedures for food preparation, sanitary regulations (coordinated with medical department), and maintenance of a refrigerator log for the refrigerated spaces

- Maintaining sanitary conditions of all foodservice spaces and equipment

- Held directly responsible for food-borne illnesses resulting from improper or careless preparation, serving, or storage of food

- Analyzing the general mess menu prepared by the leading MS for nutritional content and variety before forwarding the menu to the commanding officer for an approval signature

- Maintaining the required records and forms and submitting all general mess reports and general mess financial returns

- Assigning personnel to the duties for which they are best suited by reason of ability, training, and personality

A complete listing of the responsibilities of the food service officer may be found in *Foodservice Management*, NAVSUP P-486, volume I, chapter 1, part b.

Enlisted Responsibilities

Until now this chapter has focused on the organization, history, the Navy Ration Law, and officer responsibilities in the general mess. The focus now shifts to you, the MS, under the food service officer who is responsible for the proper performance of your assigned duty. But before describing the duties of the MS, it is essential that you understand the work routine of the MS.

MS personnel are usually divided into two watches, port and starboard. Each watch is for a 24-hour period. The watch is usually relieved

at a time agreed upon by both sections, subject to the approval of the leading MS. Watches may be for longer periods of time depending upon the number of personnel assigned and the mission of your command.

The on-watch status may not be a continuous work period even though YOU ARE ON DUTY FOR THE FULL WATCH PERIOD. After the meal has been served and the galley cleaned, there may be time for rest and relaxation before preparation for the next meal begins; however, the galley should never be left unattended. One watch member should remain in the galley at all times until it is secured for the day for the purpose of security and fire prevention.

You probably have noticed a set of INSTRUCTIONS and SAFETY PRECAUTIONS posted on the bulkhead of your galley. This is required aboard all ships and stations. In general, these instructions cover the same basic matters, but they may vary somewhat in application according to the size and mission of the activity, the nature of the equipment in use, the daily routine followed, or other considerations. You should study and learn the instructions for your galley and make it a habit to follow the ones that apply to your work. In fact, you will WANT to follow them because you will see that they make sense. They are concerned with maintaining the galley as a clean, orderly workspace; keeping the equipment in excellent condition; conserving Navy supplies; preparing wholesome, acceptable, nutritious meals; and maintaining safety on the job, the security of the ship, and the health and welfare of all your shipmates.

The job description and responsibilities assigned to the individual MS and apprentices are influenced by the command's organizational manning and the billets authorized. The size of the division is in turn determined by the size and mission of the command.

At large commands, job descriptions and individual positions tend to be specialized. The command is usually allowed a chief MS, a galley supervisor, a watch captain, a vegetable preparation room supervisor, and a bakeshop supervisor.

When fewer persons are available, some of these titles/positions are combined. At smaller commands one MS may be responsible for the entire operation of the general mess and the officers' mess. Usually on smaller ships the officers are fed from the general mess. You should keep these facts in mind while you are studying the job descriptions of MS personnel.

LEADING MESS MANAGEMENT SPECIALIST.—The leading MS does not have custody of, nor control over, the original records of food items received in the general mess. The leading MS does not prepare public vouchers or general mess returns. The leading MS should have access to these records for effective planning purposes. Duties are confined to the galley, bakeshop, and other foodservice spaces assigned to the MS and the work directly connected to these spaces. The leading MS is in charge of the serving line, scullery, and the area required for the handling of food wastes only in the absence of the master-at-arms. The duties of the leading MS are coordinated with the duties of the master-at-arms. The leading MS has the following responsibilities:

- Is in direct charge of the galley

- Makes sure that all equipment, fittings, and cooking utensils are kept at maximum efficiency

- Reports to the food service officer for corrective action, repairs, or alterations as needed

- Is in charge of all personnel assigned to the galley and associated spaces

- Makes suggestions to the food service officer relative to the assignment of MSs to foodservice watches

- Musters the foodservice personnel of the galley and associated spaces each morning and conducts an inspection of all personnel for cleanliness of person and clothing and makes a report of the inspection findings and of the absentees to the food service officer

- Supervises the issue and preparation of food and instructs foodservice personnel so that food is prepared in the most economical, attractive, and appetizing manner possible within the allowed Navy ration, using the *Armed Forces Recipe Service* or locally approved recipes

- Makes sure that every precaution is taken to prevent contamination of food, and carefully inspects all food before it is prepared or served

- Reports to the food service officer if there is any doubt as to the quality of the food, so that proper determination may be made by the medical

officer as to whether the item or items will be served

- Makes sure that all foodservice section orders and ship and station regulations are enforced in associated spaces

- Prepares the general mess menu for the food service officer

- Keeps such duplicate records concerning the receipt, inventory, and expenditure of food items as may be necessary to schedule menus

- Ensures food conservation measures are enforced and that necessary usage data is properly recorded

- Is responsible for the daily preparation and maintenance of the Food-Preparation Worksheet (NAVSUP Form 1090)

GALLEY SUPERVISOR.—On large ships a senior MS may be assigned as the galley supervisor. As directed by usually the leading MS, the galley supervisor is responsible for planning and coordinating the various operations in the galley. The galley supervisor observes food preparation procedures, the service of food and cleanup operations. The galley supervisor trains and directs both watches that are under the immediate supervision of the watch captain.

WATCH CAPTAIN.—Whether or not the size of the ship or station warrants the assignment of a galley supervisor, the senior MS on watch will be the watch captain. Under the supervision of the galley supervisor or the leading MS, the watch captain has the following responsibilities:

- Makes sure that subsistence items, supplies, and equipment in his or her custody are maintained in a neat and orderly condition and are used in the preparation of meals for the general mess and not diverted to other uses

- Makes sure that personnel on watch are in clean working uniform, report to work on time, know their jobs; and relays information from the galley supervisor to all foodservice personnel on watch

- Makes sure that sanitary procedures are observed during food preparation and enforces all rules and regulations regarding foodservice

- Keeps unauthorized personnel out of the galley

- Makes sure that cost-effective methods are used at all times

- Ensures the use of the *Armed Forces Recipe Service* or approved recipes as instructed on the Food-Preparation Worksheet

- Administers on-the-job training as needed, emphasizing safety, sanitation, conservation, and attractive meal presentation

- Assigns an experienced MS to the serving station to make sure that food is properly arranged, handled, and served

- Assigns duties to the MSs assigned to duty in the galley, bakeshop, and meat preparation room

- Constantly strives to promote a friendly customer service atmosphere with the patrons of the general mess

BAKER.—An MS may be detailed in charge of the bakeshop to coordinate the work of the watches and to supervise relieving the watch.

VEGETABLE PREPARATION ROOM SUPERVISOR.—An MS, called the vegetable preparation room supervisor, is detailed for duty in charge of the vegetable preparation room and is responsible for the efficient operation of this space.

MEAT PREPARATION ROOM SUPERVISOR.—If necessary, an MS will be detailed for duty in charge of meat preparation.

JACK-OF-THE-DUST.—The person who is placed in charge of the issue room is known as the jack-of-the-dust (or more formally known as the subsistence issue room storekeeper). This person receives and stores issue room stock required to support the general mess menu. The jack-of-the-dust issues food items to the MS on watch and other persons as authorized by the food service officer. This person is responsible for the orderly condition of the issue room and such other spaces as may be assigned.

SUBSISTENCE BULK STOREROOM STOREKEEPER.—In the dry provision bulk

in charge. Refrigerated spaces are usually the responsibility of an MS. The bulk storeroom storekeeper is responsible for proper storage, care, and inventory of food items in custody. The storekeeper must follow breakout procedures and must maintain the prescribed files and record.

MESSDECK MASTER-AT-ARMS.—The billet of the messdeck master-at-arms, when written into the ship's manning document (SMD) billet structure as an MS, is permanently assigned to the supply department. When assigned in this manner, the master-at-arms is directly responsible to the leading MS. When the activity billet structure does not provide for the assignment of an MS as the master-at-arms, the master-at-arms is assigned to the foodservice division by the executive officer. The master-at-arms coordinates all duties with the leading MS but is directly responsible to the food service officer or a designated representative who normally is the leading MS. When a member other than an MS is assigned to duty as the master-at-arms, the member becomes a temporary member of the supply department. Collateral duties or watches that interfere with the primary duties as master-at-arms normally will not be assigned. The messdeck master-at-arms has the following responsibilities:

- Is in charge of all spaces and equipment in the serving line, scullery, and food waste-handling areas except the equipment or areas under the responsibility of the leading MS

- Assigns foodservice attendants in the service of food, the maintenance and cleanliness of spaces and equipment, the operation of the scullery, and the handling and disposal of food wastes in coordination with the leading MS

- Musters foodservice attendants daily and thoroughly inspects for personal neatness and cleanliness

- Supervises the cleaning of the messdecks, serving lines, scullery, and the mess gear

- Makes sure that the scullery is operating according to current instructions

- Inventories and maintains adequate mess gear to make sure that a sufficient quantity will be available throughout the serving period

foodservice attendants in sanitation, scullery operation, and food handling in conjunction with the medical department

- Maintains order and discipline in assigned areas

- Supervises the signing and control over the Meal Signature Record (NAVSUP Form 1291) and is responsible for the preparation of the Recapitulation of Meal Record (NAVSUP Form 1292)

FOODSERVICE ATTENDANTS.—Foodservice attendants are enlisted members detailed to the general mess for duty in any or all of the following capacities:

- Serving of food on the serving line

- Maintenance of cleanliness and sanitation of the spaces and equipment

- Operation of the scullery and the handling and disposal of food wastes

- Loading and unloading supplies for the general mess

In addition, foodservice attendants may be detailed to work in the vegetable preparation room and to wash cooking and baking utensils in the galley and bakeshop.

RECORDSKEEPER.—The MS assigned to maintain foodservice records and forms assists the food service officer with timely preparation and submission of required reports and foodservice financial returns.

PRIVATE MESSES

Generally the type of ship determines the number of private messes aboard ship. Among the messes that may be established afloat are the flag, commanding officer (cabin), unit commander, wardroom, warrant officer, and chief petty officer messes. It is important that you, the MS, understand the function of the private messes and the role of the MS when assigned to duty in a private mess.

Officer and chief petty officer messes are established by *U.S. Navy Regulations* for the purpose of promoting and maintaining the well-being, morale, and efficiency of officers and chief petty officers by providing dining, lodging, social, and recreational facilities aboard ship.

Specific Types

Each type of mess has been established to accommodate much of the members of the mess. The establishment of the mess is governed by the design of the ship and the ship's manpower authorization and strength, the personnel assigned, and the embarked staffs.

FLAG MESS.—A flag officer regularly attached to a ship may set up his or her own mess and operate it with personnel assigned to his or her staff. The flag officer may invite officers of his or her staff to join. Staff officers not invited to join the flag dining facility become members of the wardroom or the warrant officers' mess.

UNIT COMMANDER'S MESS.—When a unit commander is regularly attached to a ship he or she may establish his or her own mess and operate it with personnel assigned to his or her staff. Normally, the commander's staff will be invited to be members of the mess. However, the commander may invite only such staff officers as he or she desires. Staff officers not invited will become members of the ship's wardroom mess. In those ships that do not have separate unit commander and wardroom mess food preparation and storage facilities, the unit commander should give serious consideration to joining the wardroom mess and dining separately, if desired, rather than establishing a separate mess, particularly if the wardroom mess facilities are limited.

COMMANDING OFFICER'S MESS.—The commanding officer of a ship may form his or her own mess. As a matter of custom, the commanding officer of a large ship will have his or her own cabin mess, while on small ships, such as destroyers, the commanding officer eats in the wardroom mess. This is necessary, since on small ships the number of personnel assigned is insufficient to support two officer messes. The ship's manpower authorization and strength

mess.

WARDROOM MESS.—All officers aboard a ship other than those subsisting in a flag mess, unit commander's mess, commanding officer's mess, or warrant officers' mess are required to join the wardroom mess. The wardroom mess is normally the largest officers' mess on a ship.

WARRANT OFFICERS' MESS.—On some large ships space is available for the establishment of a separate mess for warrant officers. The availability of space, the number of warrant officers assigned, and the number of personnel aboard dictate whether or not a warrant officers' mess will be established.

CHIEF PETTY OFFICERS' MESSES AFLOAT.—Master, senior, and chief petty officers of the Navy, and other armed forces enlisted personnel in paygrades E-7, E-8, and E-9 will dine separately from other enlisted personnel aboard ships.

On small ships with only limited numbers of chief petty officers on board, there will not be an established mess. In this situation, the chief petty officers will have their separate living and dining area, but food from the general mess will be provided.

Organization

Each private mess with the exception of the chief petty officers' mess has a board of officers consisting of a president, a treasurer, a caterer, and an audit board for administration of the mess. Regulations provide for only two positions in a chief petty officer mess, that of mess president and mess treasurer. The responsibilities of these positions are similar to those of the other private messes. For a more detailed description of the responsibilities refer to *Foodservice Management*, NAVSUP P-486, volume II, chapter 4.

MESS PRESIDENT.—The mess president is the senior officer or, in the case of the chief petty officers' mess, the most senior chief petty officer for purposes of military authority. The mess president will preside and is charged with preservation of order and compliance with mess regulations. The mess president will set the example of conduct expected in the mess and be particularly attentive to the welfare of the

approve the menus and make sure that well-balanced and nutritious meals are served.

MESS TREASURER.—The mess treasurer supervises the overall administration, management, and operation of the mess.

MESS CATERER.—The mess caterer is responsible for the operation of the mess. The caterer supervises the procurement, storage, and issue of all provisions and supplies; supervises the preparation and serving of the food; and supervises the planning of well-balanced and nutritious meals. In some instances such as in the chief petty officers' mess, the responsibilities of the caterer and the treasurer are performed by one person. Refer to the NAVSUP P-486, volume II, for regulations pertaining to the assignment of the mess treasurer/caterer.

WARDROOM MESS OFFICER.—The assignment of a wardroom mess officer to a ship eliminates the need for appointing a mess treasurer and a mess caterer. The wardroom mess officer is responsible for the duties of the mess treasurer and the mess caterer.

MESS MANAGEMENT SPECIALIST.—MSs are responsible for performing the functions associated with the management and operation of private messes afloat.

In addition to the personnel titles that you have already become familiar with you will find titles such as wardroom supervisor, leading mess petty officers, and stateroom supervisor. Common terms in the officers' mess, jobs, and responsibilities of these personnel will be covered in later chapters.

OFFICERS' QUARTERS AFLOAT

The Commander, Naval Supply Systems Command (COMNAVSUPSYSCOM) is responsible for providing administrative and technical direction for officers' quarters afloat. To discharge this responsibility, COMNAVSUPSYSCOM issues directives, issues letters of guidance, and provides training and assistance to operating personnel.

Purpose

Wardrooms and staterooms are officers' seagoing homes and should exhibit maximum should be strictly adhered to and every effort toward the physical improvement of the stateroom explored.

Types

Quarters on board ships are of several different types. Flag officers and commanding officers have their own mess and their quarters are normally larger and more like bedrooms than other officer quarters found on board ships.

FLAG OFFICER.—Quarters for flag officers include a stateroom and private head facilities. The staterooms are like small bedrooms ashore.

COMMANDING OFFICER.—Quarters for the commanding officer are like the quarters provided for flag officers.

STATEROOMS.—Staterooms are berthing spaces for officers aboard ship. They are similar to small bedrooms. Officers other than flag officers, commanding officers, executive officers, and sometimes department heads are billeted two to a stateroom.

Organization

The mess caterer or, if there is no caterer, the mess treasurer is usually responsible to the mess president for the service, care, and maintenance of quarters afloat.

MESS CATERER.—The mess caterer manages the quarters and supervises the assigned MS. Some of his or her responsibilities are as follows:

- Providing laundry and stateroom cleaning services
- Maintaining and repairing of equipment and facilities

MESS MANAGEMENT SPECIALIST.—MSs are responsible for performing the functions associated with the management and operation of quarters afloat. Responsibilities of the MS are discussed in chapter 11.

QUARTERS ASHORE

One of the most interesting and challenging duties to which you may be assigned as an MS3

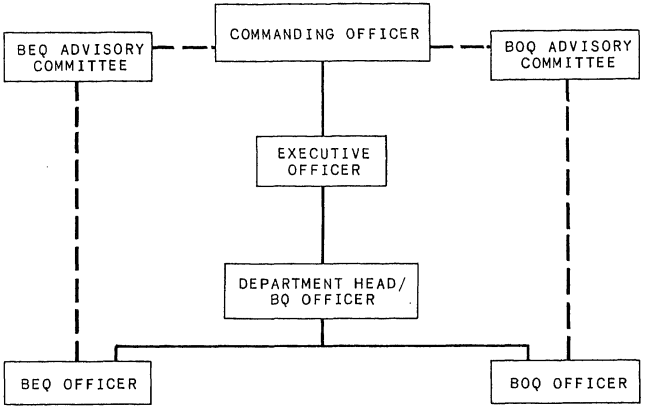

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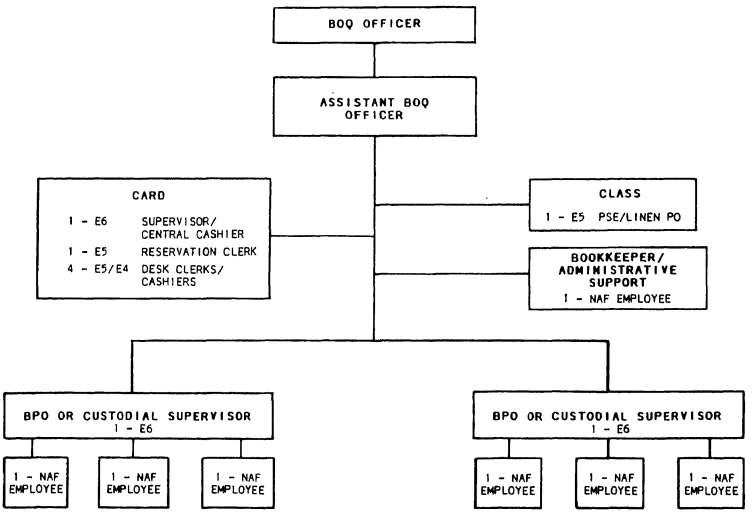
Figure 1-3.—BQ organization.


BOQ OFFICER
ASSISTANT BOQ OFFICER
CARD
1 - E6 SUPERVISOR/ CENTRAL CASHIER
1 - E5 RESERVATION CLERK
4 - E5/E4 DESK CLERKS/ CASHIERS
CLASS
1 - E5 PSE/LINEN PO
BOOKKEEPER/ ADMINISTRATIVE SUPPORT
1 - NAF EMPLOYEE
BPO OR CUSTODIAL SUPERVISOR 1 - E6
BPO OR CUSTODIAL SUPERVISOR 1 - E6
1 - NAF EMPLOYEE
1 - NAF EMPLOYEE
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1 - NAF EMPLOYEE
1 - NAF EMPLOYEE
1 - NAF EMPLOYEE

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Figure 1-4.—BOQ organization.

will be within the bachelor quarters complex of a naval shore activity. Naval personnel must be provided with habitable, sanitary, and well-managed quarters.

Types of Quarters

Bachelor quarters include all bachelor officer and bachelor enlisted quarters.

BACHELOR OFFICERS.—Quarters provided for bachelor officers depend on the officer's rank, but usually consist of a minimum of 250 square feet of living space, with living room, bedroom, private bath for permanent residents to private room with shared bath with not more than one other for temporary and transient officers.

BACHELOR ENLISTED.—Quarters provided for enlisted personnel are based on rate and type of duty, such as permanent, temporary, or transient. Accommodations may range from open bay barracks with central bath to a private room with private bath for more senior enlisted personnel.

Organization

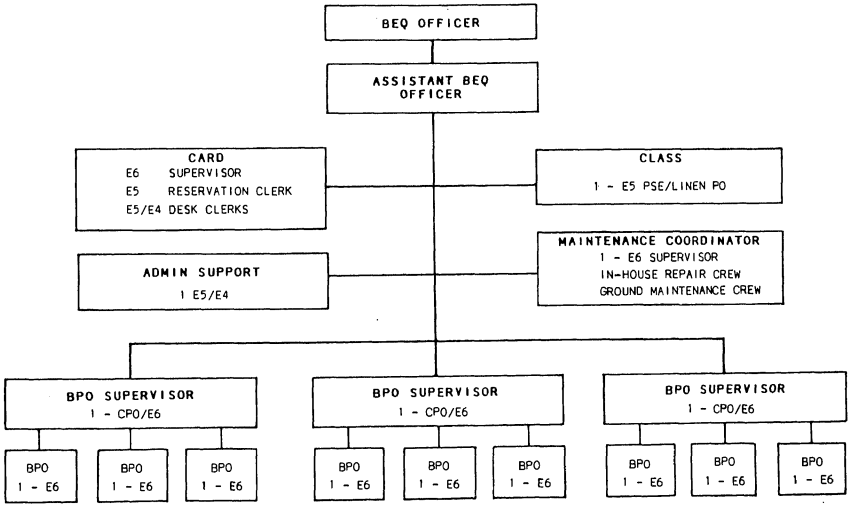
For a look at the organization of the bachelor quarters, see figures 1-3, 1-4, and 1-5. Personnel responsibilities within the organization of the bachelor quarters are discussed in chapter 11.

ADVANCEMENT REFERENCES

One of the most important opportunities regarding your professional development is advancement. Your pay increases and job assignments become more interesting and more challenging, and you are regarded with greater respect by officers and enlisted alike. Also, you enjoy the satisfaction of getting ahead in your chosen Navy career.

Advancement Handbooks

The Advancement Handbook for Petty Officers for your rating and the *Advancement Handbook for Apprenticeships* are convenient tools for personnel studying for advancement. They provide, in one easy-to-use booklet, information needed to prepare for advancement.



90.103

Figure 1-5.—BEQ organization.

The occupational standards and naval standards are reprinted from section I, *Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards*, NAVPERS 18068E. The bibliography is reprinted from *Bibliography for Advancement Study*, NAVEDTRA 10052.

The booklets are produced by the Naval Education and Training Program Management Support Activity. Distribution is NOT automatic; your ESO must order them for your command.

Personnel Qualification Standards

The personnel qualification standards (PQS) program is a qualification system for officer and enlisted personnel in performing certain duties. This program is designed to help you develop skills that are necessary to perform your assigned tasks. This program is used by both the air and surface communities of the Navy and by the Coast Guard. It is not applicable to nuclear propulsion or the fleet ballistic weapons systems. A PQS is a list of the minimum knowledge and skills required to qualify for a specific watch station, maintain a specific equipment or system, or perform as a team member within a unit.

The PQS program is in the format of a qualification guide. It asks the questions trainees must answer to verify their readiness to perform a given task and provides a record of their progress and final certification. The PQS approach to training is based on individualized learning. A personal program of study is written for each trainee. The operational supervisor helps the trainees in performing their tasks and certifies that they have properly learned each step of the process.

Refer to *Military Requirements for Petty Officer Third Class*, NAVEDTRA 10044, or your training petty officer for more in-depth information on the PQS system.

Career Planning Guide

Career planning will not provide a straight-line approach applicable to everyone. It should be viewed as a flexible base from which you may place your career consistent with prior experiences, education, and your career objectives.

The *Career Planning Guide*, NAVSUP P-350, for members of the supply department and the MS rating will be of assistance to you in helping you plan your career. Your training petty officer or divisional career counselor will have a copy of the career planning guide and will be able to give you some assistance in planning a challenging and rewarding career.

CHAPTER 2

ADMINISTRATION

In chapter 1 you learned the administrative responsibilities of the various personnel in the line of authority, the organizational areas of assignment for MS personnel and the mission of the general mess, wardroom mess, and bachelor quarters.

This chapter discusses the regulations, instructions, and publications used in the administration of these areas.

In this chapter you will find the answers to the following questions:

- What is the purpose of the menu planning board, menu review board, and food service officer's suggestion box?
- Which publications are used in the various administrative areas of MS responsibility?
- What recognition programs are normally available to the MS?
- What are the security regulations that pertain to the general messes, private messes, and bachelor quarters?
- What is the function of the various types of inspections?
- What type of assistance is provided by the bachelor quarters and food management teams?

GENERAL ADMINISTRATION

General messes, private messes, and bachelor quarters are operated according to various laws, directives, regulations, and instructions. Some regulations and instructions are Navywide and some are local. To better understand the operation of the messes and bachelor quarters, it is necessary for you to have some knowledge of these laws, directives, and regulations.

GENERAL MESS

The general mess is operated according to laws, directives, and regulations. The Navy Ration Law, which was discussed in chapter 1, is such a law. Department of Defense Directive 5160.11 authorized the publication of a federal supply catalog for food items. Regulating instructions that refer to the general mess include *U.S. Navy Regulations, 1973*, Naval Supply Systems Command publications, and the *Navy Comptroller Manual*, as well as Navy Food Service Systems Office instructions and notices.

Menu Planning Boards

Menu planning boards are composed of MSs from the foodservice division who revise the initial menu planned by the leading MS. Menu items are selected according to food supplies, galley equipment, and manpower, and other administrative factors. Menu planning boards should periodically survey the command's food preferences and revise menus accordingly.

Menu Review Boards

Menu review boards consist of personnel from all divisions and are usually chaired by the food service officer. These boards can bring in new ideas for the menu. Membership may vary from one representative from each division to a more limited or to a broader membership, depending on the command's wishes. The purpose of the board is to have patron representatives communicate with the foodservice management. All suggestions and criticisms presented by the members should be given adequate attention and explanation as appropriate. The menu review board can be used to provide patrons with an understanding of the resources and limitations of the foodservice operation.

As an aid in providing the best service possible to patrons of the general mess, a supply of suggestion forms is available at the entrance of the general mess. A suggestion box is located at a spot convenient for personnel to deposit completed forms.

Suggestions are collected daily after the evening meal. A reply is made within 48 hours when a name and address is furnished on the reverse side of the card.

Publications

Publications are provided for technical guidance information by the Navy Food Service Systems Office (NAVFSSO) and are used in all aspects of general mess operations. A good example of these publications is the *Navy Recipe Service*, NAVSUP P-7.

ALFOODACT MESSAGE.—The ALFOODACT message is a message sent to food activities concerning hazardous food recalls. The message gives the brand name, national stock number, source of supply, and instructions on the holding and disposition of suspected items. Refer to NAVSUP P-486, volume I, for detailed information and instruction on the ALFOODACT message.

NAVFSSO FOOD FLASH.—The food flash is an informational publication issued to highlight a specific event or item such as Navy nutrition month, for which a miniguide was shown explaining how to avoid too much fat and cholesterol in menu planning.

NAVY FOODSERVICE, NAVSUP P-476.—*Navy Foodservice* (NAVSUP P-476), a quarterly publication of the Navy Food Service Systems Office, is distributed to all activities having a general mess. The publication contains useful information on commodities, equipment for galley use, general mess modernization, revisions to publications, suggested special event or holiday menus, nutrition, sanitation, training, hints on food preparation, foodservice operations, menu planning, and recordskeeping.

FOODSERVICE MANAGEMENT, VOLUME I, NAVSUP P-486.—This publication establishes policy for the operation and management of general messes ashore and afloat. proper performance of their duties and to help them to understand and fulfill the responsibilities of their individual tasks associated with general mess operations.

FOODSERVICE OPERATIONS, NAVSUP P-421.—The purpose of *Foodservice Operations* is to provide foodservice personnel with the necessary information to achieve an effective food operation. The text is organized in the sequence in which various tasks of a foodservice operation probably would be performed such as fundamentals of good foodservice and essentials of food production, organization, and training.

ARMED FORCES RECIPE SERVICE, NAVSUP P-7.—This publication consists of a file of approximately 1,800 recipes and recipe variations printed on 5- by 8-inch cards. The cards are color-coded to facilitate identification. The *Armed Forces Recipe Service* includes color photographs of certain recipe finished products, guideline cards, and line drawings of bread and sweet roll makeup procedures. The recipes are standardized to yield 100 portions and include efficient preparation techniques. The *Index of Recipes,* an adjunct to NAVSUP P-7, is a compact list of all recipes contained in the *Armed Forces Recipe Service.*

MESSDECK MASTER-AT-ARMS HANDBOOK, NAVSUP P-520.—This publication provides the messdeck master-at-arms (MDMAA) with professional guidelines for effectively motivating and directing foodservice personnel in the performance of their duties. It serves as a handy, easy-to-use reference pertaining to MDMAA responsibilities, including training and supervision of foodservice attendants.

MANUAL OF NAVAL PREVENTIVE MEDICINE, NAVMED P-5010.—Approved procedures for maintaining a safe food supply and for cleaning and sanitizing facilities, as well as sanitary food preparation and service can be found in NAVMED P-5010, chapter 1.

SHIPBOARD FOODSERVICE EQUIPMENT CATALOG, NAVSUP P-533.—The *Shipboard Foodservice Equipment Catalog* provides shipboard personnel, naval shipyards, planning and engineering for repairs and alterations (PERA) activities, and supervisors

of shipbuilding (SUPSHIP) conversion and repair with information necessary to determine which specific foodservice equipments are suitable for shipboard use. It contains information relative to dimensional, weight, and utility characteristics to facilitate advance planning as well as national stock numbers (NSNs) for individual items of equipment, equipment APLs, price lists, requisitioning procedures, and manufacturers' names, addresses, and phone numbers.

Office Equipment

The types of office equipment found in foodservice offices, wardroom offices, and bachelor quarters offices usually consist of electronic calculators, typewriters, and computers. Before operation, you should read the manufacturers' care, operation, and maintenance instructions and obtain instructions from your supervisor.

PRIVATE MESS PUBLICATIONS

Private mess publications provide information required to operate and administer officers' and chief petty officers' messes afloat.

Foodservice Operations, NAVSUP P-421

The NAVSUP P-421 is a required publication for private messes. Refer to the general mess publications described earlier in the chapter if you have any questions concerning the purpose of the NAVSUP P-421.

Armed Forces Recipe Service, NAVSUP P-7

The *Armed Forces Recipe Service* is standardized and includes efficient preparation techniques and should be used at all times in the private messes in the same basic manner as in the general mess.

Foodservice Management, Volume II, NAVSUP P-486

This volume sets forth the policies, regulations, and procedures for the operation of officers' quarters and messes afloat and chief

Nonappropriated Fund Accounting Procedures, NAVSO P-3520

This publication is for information, guidance, and compliance for personnel administering or accounting for nonappropriated funds and prescribes a uniform accounting system for morale, welfare, and recreation programs within the Department of the Navy.

BACHELOR QUARTERS OPERATIONS

Bachelor quarters operations are governed by policies and procedures. Some of the policies incorporate the recommendations of the residents to the commanding officer.

Bachelor Quarters Advisory Board

The purpose of the BQ advisory committee is to give residents a direct line of communication to management and command without being diluted or filtered. The committee deals with many areas of resident involvement, some of which are as follows:

- Determining residents' likes or dislikes
- Hearing suggestions and complaints
- Fostering self-help programs
- Improving resident involvement
- Gaining resources for the BQ
- Organizing resident action
- Establishing command positions
- Helping reduce vandalism/theft problems

Membership in the BQ advisory committee must be voluntary and representative of a cross section of the occupants according to rank/rate, building, floor or wing, and so forth. (The committee chairman is selected from the group.) The meetings should be attended by the BQ officer and building petty officers (BPOs). BQ staff members should keep a low profile and do not have a vote. It may be beneficial to periodically invite the host commanding officer, executive officer, department heads, Navy exchange officer, and so forth, to attend these meetings as

The meeting place, time, and date should be announced at least 1 week in advance. It is preferable to schedule it at a regular time, for instance, the first Monday of every month at 1800. The minutes will be forwarded to the commanding officer for comment via the chain of command. It is desirable that the commanding officer make comments as appropriate and return them to the residents. The minutes along with the commanding officer's comments should then be posted on the official bulletin board and in the BQ newsletter. The largest circulation possible is desired.

The advisory committee is not intended to replace the normal chain of command. It should be used in conjunction with the chain of command to be beneficial. The advisory committee will not engage in management decisions or duties.

Bachelor Quarters Manual, OPNAVINST 11103.3

The *Bachelor Quarters Manual* provides procedures for organizing and managing bachelor quarters. This manual assists in training MSs and other ratings in professional management necessary to operate bachelor quarters.

INSPECTION/ASSISTANCE

As well as the normal command and military inspections, you, as an MS, will become quite familiar with supply and foodservice-related inspections intended to improve service and ensure that high standards of sanitary food preparation and service standards are maintained.

Material Inspections

Material inspections are normally conducted on board ship on a regular basis and are shipwide. The inspection consists of spaces being inspected for preservation, cleanliness, and safety. Damage control equipment and electrical equipment are inspected for planned maintenance systems (PMS) and electrical safety checks.

Administrative Inspections

Administrative inspections are commandwide inspections and are normally conducted annually by the type commander and consist of all areas

Medical Officer Inspection

Medical inspections are conducted by the medical officer or a designated representative at least twice per month. These inspections are conducted to ensure that personal hygiene, spaces and equipment, and food storage areas meet the standards for sanitary food preparation and service.

Audit and Inventory Board

The audit and inventory board is established for the purpose of auditing and inventorying private messes. This board is appointed by the flag officer, unit commander, or commanding officer to report on the status of the mess in an unbiased objective manner. Refer to NAVSUP P-486, volume II, for the duties and responsibilities of the audit board.

Supply Management Inspection

Supply management inspections are conducted annually by the type commander on all areas of the supply department. In foodservice, much attention is placed on sanitation, recordskeeping, ration control, and customer service. A grade of outstanding on this inspection indicates a measure of superb service and a foodservice division that is highly motivated and entuned to the desires of their patrons.

Bachelor Quarters Management Assistance Inspection Team

The Chief of Naval Personnel has established the bachelor quarters management assistance/inspection team (MAIT) which is located in Washington, DC. The team consists of highly qualified senior MS personnel who are especially trained to help the command improve BQ management so that living conditions may be improved and operational costs reduced. The team will visit each command approximately every 3 years.

The team will normally conduct the visit in the following manner:

- Introduction—meet the commanding officer, BQ officer, and staff
- Inspection phase—examine every facet of the quarters operation including the living areas, CARD, CLASS, and the relationships with other

- Training—the team provides training to the quarters staff tailored to the command's needs

- Point-by-point briefing—the BQ officer is briefed in detail regarding the team's findings during the inspection phase

- Exit briefing—the commanding officer is briefed on the highlights of the team's findings and recommendations, plus the training conducted

These procedures may be modified to meet local conditions, but the team will always strive to conduct the visit with the smallest possible disturbance to the command's routine.

CNMPC (N-671) will provide a written report of the findings and recommendations of the MAIT to the host commander's major claimants. The host command will advise CNMPC in writing of actions taken on the recommendations, will keep copies of the recommendations and actions taken, and will provide copies of both to the inspectors on subsequent command inspections.

Food Management Teams

Excellence in foodservice is essential to the health and morale of Navy members and to the overall readiness of the Operating Forces. Because food is a major item of expense, utilization of the best food management, conservation, preparation, and serving practices are necessary. Navy food management teams, through providing specialized on-the-job training of foodservice personnel in the preparation and service of food, contribute significantly to improvement of the Navy foodservice program.

Navy food management teams, sponsored by the Commander, Naval Supply Systems Command, are established as separate components of NAVFSSO. The Navy food management teams are directly responsible to NAVFSSO for performance of their mission to assist ships and ashore activities in raising the quality and standards of foodservice, thereby achieving economy and increasing efficiency. For military and administrative purposes, team members are assigned for additional duty to the host command.

The mission of Navy food management teams, explained as follows, is to provide assistance, and no report of discrepancies is made to higher authority:

1. Participating in an advisory assistance capacity in the operation of the local foodservice program by working with foodservice personnel, demonstrating proper techniques in all phases of foodservice (including management, production, service of food, sanitation, training, and accounting), and motivating foodservice personnel toward increased efficiency and effectiveness

2. Providing on-the-job training to foodservice personnel through the "do as I do" method of instruction, employing advanced training aids and techniques

3. Instilling management awareness in foodservice personnel with special emphasis on high-quality food preparation, progressive cookery, proper serving techniques, foodservice safety precautions and operating procedures, fire prevention, sanitation, and personal hygiene

4. Inducing and stimulating professional pride in foodservice personnel

5. Reviewing the utilization of facilities, equipment, personnel, and other foodservice resources to evaluate realistically each general mess visited, identifying limitations that hamper accomplishment of the foodservice objective

6. Reviewing foodservice records, organization and operating manuals, financial returns, and so forth, for determination of compliance with the *Naval Supply Systems Command Manual* and current foodservice directives

7. Evaluating and assisting in implementing established Department of Defense, Navy, and command foodservice policies and procedures

8. Assisting in the development of patron foodservice education programs to make sure that personnel understand the foodservice operation, especially conservation

9. Providing information on and demonstrating new developments in foodservice and food items

10. Evaluating the practical application of foodservice techniques, imparted through technical and on-the-job training, programs of instruction and curricula and formal training, making recommendations accordingly to NAVFSSO

11. Exchanging ideas regarding foodservice operations with activities visited, and forwarding new ideas to NAVFSSO for dissemination to other Navy food management teams and field activities

12. Recording observations to provide a basi for follow-up actions to assist in resolvin problems beyond the control of the local food service management personnel through better use of manpower and money assets

Navy food management teams also conduct training in the maintenance of general mess records and the preparation of general mess returns. They provide foodservice assistance to the officers' and chief petty officers' messes afloat and participate in conducting the Ney Memorial Awards program.

NAVYWIDE RECOGNITION PROGRAMS

The Ney Award for foodservice excellence and the Admiral Zumwalt Award for BQ management excellence are both given annually. These Navywide awards create a spirit of friendly competition between commands that instills a spirit of pride and accomplishment throughout the MS community, especially for those commands judged to be the best in their particular category.

Ney Award

The annual Ney Memorial Awards program contest determines the best messes by categories (1) small ashore, (2) medium ashore, (3) large ashore, (4) aircraft carrier, (5) small afloat, (6) medium afloat, (7) large afloat, and (8) tender. The contest was named for the late Captain Edward F. Ney, SC, USN, who headed the subsistence division (now NAVFSSO) of the Bureau of Supplies and Accounts (now Naval Supply Systems Command) during World War II. As an illustration of the close cooperation between the food industry and the Navy, this contest is cosponsored by the Secretary of the Navy and the International Food Service Executives Association, an organization composed of executives in the fields of foodservice, management, and procurement.

One MS from each of the first, second, and third place winning afloat and ashore commands in each category will be enrolled in a professional cooking course.

Refer to NAVSUPINST 5061 for information on eligibility, awards, and evaluation procedures.

Admiral Elmo Zumwalt Award

This award is a means of recognizing those commands that excel in the operations of the bachelor quarters. Categories are large and small BQs and BQ management operations. For more detailed information refer to chapter 14 of the *BQ Manual*, OPNAVINST 11103.3.

LOCAL RECOGNITION PROGRAMS

Recognition programs are a way of recognizing personnel who are constantly striving to do their best regardless of the assignment. As a result of these programs, personnel are motivated and are more apt to excel in their assignments.

Mess Management Specialist of the Month

Most foodservice divisions recognize their outstanding performers by such programs as MS of the month. Local instructions govern the selection process and set the guidelines for awards. An example of these awards are special liberty, MS of the month certificate, or an individual photograph posted on the messdecks.

Messdeck Master-at-Arms and Mess Attendant of the Month

Messdeck master-at-arms and mess attendant of the month recognition program guidelines and awards normally are patterned after the MS of the month award.

Supply Department Petty Officer of the Quarter

The supply department petty officer of the quarter could be either an MS, an SK, a DK, an SH, an AK, or a temporary member of the supply department such as the MDMAA. Local instructions govern the selection and award portions of the process, but usually involve such awards as special liberty, awards ceremony, and photograph of selectee posted in the supply office.

Supply Department Sailor of the Quarter

The supply department sailor of the quarter is selected based on local instructions that give the criteria for the selection and the awards available to the sailor of the quarter. This program is similar to the supply department petty officer of the quarter program except the supply department sailor of the quarter is for nonrated personnel.

Command Petty Officer and Sailor of the Quarter

Normally the personnel selected in the departments as petty officer or sailor of the quarter go on to compete with all the departments

of the command to become the command petty officer or sailor of the quarter. Incentives are usually special liberty, assigned parking spot, or head of the mess line, but may vary depending on the command.

SECURITY

Physical security in the supply department pertains to the security of classified publications and correspondence, the safekeeping of funds, and the custody and safekeeping of keys to supply spaces.

GENERAL AND PRIVATE MESS SECURITY

Security in the general mess and private mess is of the utmost importance. Food items, silverware, and other items found in the messes are pilferable and subject to waste, fraud, and abuse.

Foodservice Storage Areas and Foodservice Spaces

Foodservice spaces include bulk storerooms for semiperishable food items, refrigerated storerooms, issue rooms, vegetable preparation rooms, meat preparation rooms, bakeshops, and the galley. No person will be allowed in these spaces except those on duty or specially authorized by the food service officer.

Custody and Handling of Keys

Each lock will be passed by an original and a duplicate key different from the key to any other space. The original key will be drawn from the general key locker at the beginning of the day and will remain in the possession of the person in charge of the space during working hours. At the end of the working day, the original key will be placed in the general key locker in the supply office. Exceptions to this return to the supply office involve keys to the galley, bakeshop, bread room, butcher shop, and vegetable preparation room that will not be returned, but will be passed between watch captains as they relieve each other. Except when authorized to be kept in a special duplicate key locker, duplicate keys will be kept in a duplicate key locker in the supply office or in the supply officer's safe. A special duplicate key locker may be authorized by the supply officer when procedures require recurring use of the duplicate keys. The location of a special duplicate key locker, the control of access thereto, and the limits on the use of the duplicate keys will be prescribed in a supply department instruction. A master key that will pass all locks to foodservice spaces will be in the custody of the food service officer. As department head, the supply officer has overall accountability and right of access to all supply department spaces. As division head, the food service officer has overall accountability and right of access to all foodservice spaces. Even so, both the superior and the particular space custodian are held individually accountable for any access they might have to that space.

BACHELOR QUARTERS SECURITY

In today's modern homelike facilities, residents have acquired a greater variety and value of personal effects. Most rooms now contain stereos, televisions, photographic equipment, and fairly large sums of cash, which make the rooms ideal targets for theft.

Residents' Personal Effects

Bachelor quarters personnel should know the proper procedures to follow when personal effects are lost, abandoned, or unclaimed. You will want to know the different classes of personal effects and the procedures pertaining to each class. Refer to chapter 11, OPNAVINST 11103.3 for more detailed information.

Theft Prevention

Theft prevention programs are primarily devoted to eliminating the opportunities to steal by encouraging residents to secure highly pilferable personal items and lock their lockers and rooms.

Other theft prevention programs are used by management in such areas as physical security, key control, and visitor control.

Key Locker

Key control is of major importance to the security of residents' possessions and government property. If keys are lost, it jeopardizes the security of the bachelor quarters. Key lockers are established to assist management in the organization and control of keys. For instructions on setting up and maintaining bachelor quarters

key lockers, refer to chapter 8, OPNAVINST 11103.3.

Combinations

Combinations to safes are normally available only to the person responsible for the contents of the safe and will be changed when the safe custodian changes. Emergency procedures call for the combination to be placed in a sealed envelope, signed over the flap in such a manner that it may not be opened without detection, and placed in the bachelor quarters officer's safe.

Key Coding System

Keys should not be tagged with room or space numbers but should be coded and the codes controlled and cross-referenced.

Key Accounting System

Keys are normally signed out by the personnel assigned to the bachelor quarters for use in their assigned tasks and returned at the end of the workday. Each relieving CARD clerk must maintain strict and accountable room key controls.

Lost Key Log

A record of lost keys should be kept at the CARD. The education of occupants concerning the importance of maintaining possession of their keys is vital to key control.

CHAPTER 3

SANITATION

In a foodservice operation nothing can rival the importance of the sanitary aspects of food preparation and service. Carelessly handled food is easily contaminated with pathogenic organisms that may lead to illness. This chapter discusses the methods of preventing illnesses arising from poor sanitary practices in the preparation and service of food.

In addition to the hazards of food contamination with which MS personnel have always contended, modern warfare has added other hazard chemicals. Biological and radiological agents may be used in any future war. Protection of the food supply and decontamination measures in the galley and messing areas would be vital to the defense of the ship or station.

TYPES OF FOOD-BORNE ILLNESSES

Outbreaks of food-borne illnesses continue to be one of the problems encountered in mass feeding operations. Most outbreaks are preventable, since the most common cause is the failure of foodservice personnel to practice good personal hygiene and to use sanitary techniques. Food-borne illnesses can be classified into three basic types: natural and chemical food poisoning, food intoxication, and food infection.

NATURAL FOOD POISONING

In this type of food-borne illness, the food in its natural state contains elements poisonous to humans. In your tours of duty as a Mess Management Specialist (MS), you will learn of many new foods that are not common to the United States. Some plants and animals cause severe illness and even death when consumed.

Plants

Every effort is made to keep poisonous plants off the ship, but sometimes they do get aboard. Toadstools, hemlock, and some types of mushrooms contain natural poisons and only an expert can decide whether they are safe to eat. The safest rule is—never use unfamiliar food without your medical officer's approval.

Animals

Mussels such as those found on the West Coast during the summer, tropical fish such as toadfish, puffing fish, and certain members of the jack fish family, and in tropical waters, at certain seasons of the year, barracuda can cause poisoning and death.

CHEMICAL FOOD POISONING

Some food-borne illnesses are caused by chemical poisons. In the case of chemical food poisoning the poison is introduced into the food accidently. The following types of poisoning may be experienced in foodservice operations.

Antimony

Antimony is caused by eating food cooked in poorly coated or chipped enameled cooking utensils.

Cadmium

Cadmium may take place if chilled acid foods or drinks are allowed to stand in cadmium-plated metal containers before they are served. Illness may strike 10 to 15 minutes after the food is eaten. Lemonade, fruit punch, tomatoes, raspberry gelatin dessert, and tea that contains lemon juice can be contaminated by cadmium. Ice trays and metal pitchers plated with cadmium have caused chemical poisoning when filled with cold acid foods.

Cyanide may result if silverware is not properly washed and sanitized after detarnishing.

Zinc

Zinc in food is rare. It may occur when acid foods are cooked in galvanized iron kettles. Outbreaks have occurred when apples have been cooked in this type of kettle.

Lead and Arsenic

Lead and arsenic sometimes used to spray fresh vegetables may cause these foods to become poisonous. Be sure all fresh fruits and vegetables are thoroughly washed before you cook them, or before they are eaten raw. Lead poisoning may also result from the ingestion of food or water that has been in contact with lead pipes, lead-plated equipment, and lead-soldered pots and pans. Lead is a cumulative poison; the accumulation of small doses in the body will eventually cause chronic lead poisoning.

Fluoride

Fluoride is caused by sodium fluoride—a substance often used to get rid of water bugs and cockroaches. It is a white powder that can easily be mistaken for powdered milk. Keep all containers for such poisons out of the galley and bakeshop.

Methyl Chloride

Methyl chloride is caused by leaking mechanical refrigerators. Check your equipment for such leaks and request scheduled PMS from the engineering division to detect faulty equipment.

FOOD INTOXICATION

This type of illness is caused by toxins. Under favorable conditions certain bacteria produce chemical compounds called toxins that cause food intoxication when ingested. Staphylococcus is the most commonly reported food intoxication.

Staphylococcus

The staphylococcus germ is found in the throat, on the skin in pimples and boils, and recovering from colds. Consequently, the most prevalent carrier of food intoxication is foodservice personnel. People with any of these symptoms must not be allowed to work in food preparation spaces in any capacity.

Foods most associated with outbreaks of staphylococcus are pork products and fowl. Ham is susceptible to staphylococcus poisoning and must not be sliced too far in advance of serving unless properly refrigerated.

Other foods commonly involved are potted meats, fish, cheese, milk products (including cream- and custard-filled pastries), and potato and macaroni salads. Foods can contain sufficient toxin to cause food poisoning and yet have no odor of spoilage or abnormal taste. Even when food has been properly refrigerated, it can become contaminated by bacteria while it is being prepared or while it is standing in the galley before it is served.

Botulism

Botulism is a second type of food intoxication. This disease, usually fatal, is caused by the toxin produced by the rod-shaped bacterium called clostridium botulism. Botulinus organisms are found in the soil and gain access to foods through contact with soil and dust and possibly water. The foods most often responsible are either canned or fermented foods in which the preserving process has not been properly performed and has not succeeded in destroying the bacteria in the food. The botulinum grows and multiplies in an airtight container. However, when cans are damaged, leak, bulge, or are sprung, the contents are presumed to be unsafe. Medical personnel should be consulted to determine whether these products are safe or unsafe.

The botulinus organism sometimes produces a gas and a cheesy odor in food, but the absence of these signs does not necessarily mean that the bacteria are not present.

FOOD INFECTION

This type of food illness is caused by microorganisms such as the salmonella shigella clostridium species, streptococci bacteria, bacillus bacteria, and typhoid fever bacteria. A large percent of the food infections is transmitted by foods that have been allowed to remain at room temperature for a prolonged period of time. The great majority of the outbreaks of food infection

foods that may be involved are custards, milk, cream, ice cream, seafoods, meats, eggs, meat products, shellfish, salads, mayonnaise, salad dressing, poultry dressing, bread puddings, cream pies, eclairs, and filled pastry.

Salmonellosis

Salmonella bacteria are transmitted by foods; usually from undercooked, semicooked, raw foods, or from foods that have become infected after cooking by persons who are harboring the bacteria and giving them off in intestinal discharge.

Since salmonella bacilli leave the body through the intestinal tract, the main source of salmonella infection is people who do not wash their hands after leaving the head; consequently they contaminate all the food they handle.

Mice, rats, and cockroaches may contaminate food by dragging filth over food and food utensils, or by intestinal deposits which are brushed off into food or containers.

While no specific foods may be said to be responsible for salmonellosis, the ones most likely to harbor the salmonella bacilli are (1) those that are usually eaten raw, such as salads and greens; (2) cooked leftover foods that are not reheated thoroughly; (3) foods that are undercooked, especially poultry and uninspected meats; and (4) infected eggs that are eaten raw or undercooked.

Streptococcus

Infections such as septic sore throat and scarlet fever are transmitted by contaminated milk and by certain other foods, including meat, meat products, and dressings. One type of this infection also causes a gastrointestinal disturbance. Floor dust is one of the modes of transmission.

Typhoid Fever

Typhoid fever is transmitted by milk, shellfish, or water supplies that have become polluted with the urine or feces of a person harboring the organism of this disease. It is also spread by carriers and flies, which transport the typhoid bacteria from soiled articles to foods, dishes, and cooking utensils.

nated foods or water, by carriers, or by flies. The bacilli of this disease are found in the bowel discharges of infected persons.

Infectious Hepatitus

Infectious hepatitus is a form of liver disease with symptoms of general discomfort. Jaundice or other signs of liver injury are sometimes present. The disease is highly contagious. Drinking water or unsanitary conditions and flies or other biting insects may transmit the infectious material.

ANIMAL PARASITES

Animal parasites sometimes enter the body in food and produce infections. Some of these forms of animal life are one-celled; all are so tiny that they are not visible when the food is being prepared.

Amoebic Dysentery

This illness is caused by a one-celled animal, the amoeba. These organisms eat the red blood corpuscles of the body and also the cells that line the intestines. The dysentery-producing amoebae are transmitted by foods served cold and moist, such as celery, lettuce, and other fresh vegetables, or fresh berries. These foods may be infected by human carriers, by flies, or by having been grown in fields where animal excreta was used as fertilizer.

Tapeworm

The tapeworm is a parasite found in fish, pork, and beef which may be transmitted to humans by eating meat or fish that has not been cooked long enough.

BEEF TAPEWORM INFECTION.—Beef tapeworms are transmitted by infected beef that has not been cooked long enough to kill the encysted larvae. To prevent ingesting the beef tapeworm, only government-inspected beef should be used. If it is necessary to use beef that has NOT been inspected, freeze it at 14°F or below for 5 days or longer, or pickle it in a 20 to 25 percent salt solution for 5 days or longer. Cook it well-done; never serve it rare.

pork tapeworm is transmitted by eating infected pork that has not been cooked long enough to kill the cysts of the worm, and also by accidentally ingesting pork tapeworm eggs. If ingested, the tapeworm causes pork tapeworm infection.

Eating infected pork that has not been thoroughly cooked is the most common cause of trichinosis. All fresh pork products must be cooked to an internal temperature of 170 °F to kill the trichinella worm. Since there is no way of knowing whether or not this parasite is present, the pork must ALWAYS be thoroughly cooked.

FISH TAPEWORM INFECTION.—Fish tapeworm is transmitted by infected fish that has not been thoroughly cooked.

For purposes of safety, always ensure that fish is thoroughly cooked, and that it is never tasted in the raw state.

MOLDS AND YEAST

Other types of cell life that may or may not be harmful are molds and yeasts.

Molds

Molds are composed of many cells and may be very small or large enough to cover an entire wall. They grow best in dark, damp places where temperatures are favorable. Some molds are valuable in the production of medicines such as penicillin; other molds may cause certain infections in human beings.

Molds spoil the taste of food and eventually destroy it. Mold may be removed from certain foods and the remainder of the food used. Consult your medical department on the precautions to be taken.

Yeasts

Like bacteria, yeasts are single-celled. They reproduce by budding. When a bud becomes sufficiently large, it separates from the original cell and becomes an independent cell. Certain yeasts are used in breadmaking, vinegar fermentation, and the manufacture of beverages.

FOOD PRESERVATION

Although bacteria have been discussed as the cause of food-borne illnesses, they also cause food spoilage either by actually eating the foods and producing toxins inside the foods.

Foods are protected from bacteria spoilage by several methods employing heat—pasteurization, cooking, dehydration, and smoking. They are also protected, within limitations, by refrigeration.

A definite relationship exists between the temperature and type of food material and the length of time required to kill bacteria. The ideal temperature for the growth of bacteria is between 40 °F and 140 °F. Any temperature below 40 °F retards the growth of bacteria. Temperatures above 140 °F, if maintained for a sufficient time, kill most bacteria. Whether or not the harmful bacteria can be destroyed by heat depends upon the type of bacteria and the type of food material involved. Heat penetration varies widely with the different types of substances in which bacteria may grow. For example, a longer period of time or higher temperature is required to kill bacteria in a can of soup than in a can of water. The exact number of minutes, hours, or days an organism will live is impossible to determine unless the temperature it can tolerate and the material on which the bacteria feed are known. This relationship, called thermal death time, is defined as the period of time required to kill a bacterial species in a certain material at a previously determined temperature.

Pasteurization

Destruction of all harmful bacteria in certain foods, notably milk and milk products, is carried out without actually cooking the foods. There are three methods of pasteurization:

1. Holding method, in which milk is held at a temperature of 145 °F for not less than 30 minutes
2. Short-time temperature (flash) method, in which the milk is held at 161 °F for not less than 15 seconds
3. Ultrahigh temperature asceptic sterility process (U.H.T.A.S.P.) 161 °F for 30 seconds

Since acid or sour-tasting foods are generally capable of destroying bacteria at a lower temperature, such foods as fruit juices, pickles, and sauerkraut frequently are pasteurized rather than subjected to high temperatures.

Cooking

Cooking is effective in destroying moist food-spoiling bacteria. Cooking cannot, however, be considered a sterilization process because some heat-loving bacteria are not destroyed by it. These heat-resistant bacteria fortunately do not affect canned food since conditions are unfavorable to their development.

Dehydrating

Dry heat is sometimes used to dehydrate fruits and vegetables in order to preserve them. In this case, however, the heat does not destroy the bacteria but simply removes one of the conditions essential for their growth—MOISTURE. Should any dried food come into accidental contact with water during storage, the food will quickly deteriorate due to bacterial activity. You should be careful to store all dehydrated foods in clean, dry, covered containers.

Refrigeration

Although refrigeration helps keep perishable foods from spoiling, food cannot be kept indefinitely in the refrigerator without showing some signs of bacterial activity. NAVSUP P-486, volume I, chapter 5, lists the correct temperature and safe storage life for perishable subsistence items. Care must be taken to arrange food in the chill or freeze spaces in such a way as to allow the free circulation of air. Overcrowding and stacking foods retards the refrigeration process. Any container of food placed in the refrigerator must be covered to prevent contamination either from food placed on shelves above or from condensation. As you know, sanitation is very important in foodservice. Be sure to keep all refrigerated spaces clean and odor-free at all times.

FOOD PREPARATION

It is evident that the foodservice worker is the most important link in the transmission of disease through food. The workers' health, personal habits, understanding of bacteria, and methods of preparing and serving food are of concern not only to themselves but also to their shipmates as well.

BACTERIA

An understanding of bacteria is valuable to all personnel and essential to those who work with food in any way. Bacteria are one-celled microorganisms; so small they are visible only under a microscope. They are widely distributed in the air, water, soil, and in animal and plant tissues. Bacteria are classified according to their shape. Those round in shape are called COCCI; the rod-shaped ones are called BACILLI; and the spiral-shaped ones are called SPIRILLA.

Since bacteria cannot be seen, our best defense against the harmful bacteria is strict adherence to sanitation principles. Bacteria can move of their own accord only in liquids and cannot leave a fluid surface unless transported as "passengers" by other agents such as dust, food, dishes, silverware, cooking utensils, dirty fingers or fingernails, a common drinking cup, a hand towel, water, insects, or rodents.

Bacteria reproduce themselves simply by dividing in half. On the average each bacterium, under favorable conditions, will divide and become two bacteria every 20 minutes. The rate of multiplication or growth of bacteria is affected by heat and cold. Certain types of bacteria, if allowed to grow and multiply, produce toxins that cause food poisoning. Boiling will kill all bacteria, but it will not kill the toxins once they are allowed to form. Certain strains of the staphylococcus bacteria will withstand boiling temperatures for long periods of time before they are killed and are virtually impossible to kill by normal cooking methods. Once the toxin has been allowed to form, no amount of cooking will make the food safe. Refrigeration will prevent the bacteria from producing toxin but will not kill the toxin once it is formed.

FOODSERVICE PERSONNEL

Since foodservice personnel are considered to be the most likely mode of transmission of disease through food, certain requirements such as medical examinations, sanitation training, and personal hygiene must be completed before working in food preparation areas.

Physical Examination

All foodservice personnel including personnel employed by civilian contract services must be examined and determined to be free from communicable disease before initial assignment

in foodservice. Subsequent physical examinations will be conducted annually. The physical examination must be sufficiently comprehensive to detect acute or chronic diseases. Laboratory tests and other diagnostic determinations are performed at the discretion of the senior medical officer; however, all foodservice personnel must be examined for evidence of tuberculosis. Employees of contract services must be either examined by local military medical departments or must present documentary evidence, acceptable to local military medical departments, that a complete and thorough physical examination has been done.

Personnel having any open lesions, particularly on the hands, face, or neck, or acne of the face, are prohibited from performing foodservice duty.

Examination of personnel, with questionable medical or social histories, must be comprehensive including X-ray of the chest, stool and urine examinations for parasite and bacterial pathogens, and other such determinations as may be indicated by international agreements.

All personnel must repeat medical tests when away from duty for 30 days. All personnel must submit to laboratory examinations and other tests to detect and treat acute or chronic diseases and be relieved from duty if they are infected.

Training

All foodservice personnel must be thoroughly indoctrinated in personal hygiene and food sanitation, as well as in the methods and importance of preventing food-borne illness. Temporary foodservice personnel must be indoctrinated as follows:

- All foodservice personnel will receive a minimum of 6 hours' initial training and 3 hours' annual refresher training in foodservice sanitation principles.

- All foodservice sanitation training will be conducted by environmental health officers and/or preventive medicine technicians.

In those cases where it can be shown that environmental health officers or preventive medicine technicians are not available to perform such training, medical department representatives, MSs in paygrade E-5 and above, or civilian foodservice supervisors who have received special training to qualify them as foodservice sanitation instructors may be used. Special instructor certification training may be taken at either a Navy environmental and preventive medicine unit or naval regional medical center preventive medicine service, and completion of training must be documented. Certified instructors must use and maintain up-to-date, standard Navy lesson plans in their training programs. Instructors must be recertified every 3 years and are authorized to sign the NAVMED 4061/1, Foodservice Training Certificate.

Personal Hygiene

In the preceding section you learned that bacteria are everywhere; they multiply rapidly and thrive on food and moisture. While some types of bacteria are helpful, there are others that are harmful and can be passed directly or indirectly from one person to another. We will now discuss how these disease-bearing bacteria are transmitted, and how you, by practicing good personal hygiene, can prevent their transmission.

Bacteria are discharged from the respiratory tract which includes the nose, mouth, throat—your breathing and speaking apparatus. Measles, mumps, influenza, and the common cold are examples of infections that produce bacteria-loaded discharges from the nose and throat. These discharges are usually the first symptom of illness. When you cough or sneeze, bacteria are sprayed from the mouth in large numbers and for quite a distance. The hand that comes in contact with the handkerchief used to block the cough or sneeze becomes a source of infection for anything it touches. The rule to follow is—block the cough or sneeze, then WASH YOUR HANDS.

Certain disease-bearing bacteria are discharged from the intestinal tract. An example is the bacteria that causes dysentery. To prevent transmitting the bacteria you should wash your hands thoroughly after using the head.

Some people may be carrying disease bacteria in their body and spreading them to other people. The person who is "catching cold" for example is carrying the germ of the common cold. During the incubation period, which may be from 12 to 48 hours, this person is likely to be giving off the germs of the common cold to others.

Your hands provide one of the most common means of transmitting germs. Hands that look clean to the eye may, under examination for bacteria, be found to be heavily contaminated. Hands contaminate objects used in foodservice and these objects may be the means by which

diseases are transmitted to others. This is indirect contact.

Many unconscious habits are highly unsanitary. Examples of such habits are putting the fingers in the mouth, scratching the head, rubbing the ear, or drying or wiping your hands on your apron. It is important to become aware of these habits and to control them as much as possible. In any case, remember always to wash your hands before touching food or utensils.

Another unsanitary practice is sticking fingers into food to taste it. The proper way to taste food is to use two spoons, usually the soup spoon size. Use one to dip out a tasting sample; transfer it to the second spoon for tasting. Always use two spoons.

A daily bath and wearing clean work clothes, including head covering, are important habits of personal hygiene.

PRECAUTIONS

Most food-borne disease outbreaks are due to four factors: (1) preparation of food too far in advance, (2) poor refrigeration of food, (3) careless handling of food, and (4) failure of personnel to follow personal hygiene habits.

The following precautions should be observed in preparing and serving food:

- Food should be served promptly after it is prepared.

- Any food that has been ground or chopped and is to be cooked later or incorporated in a prepared dish must be refrigerated immediately. Such ground or chopped food should be refrigerated until cooked. When food is ground, an increase in the area of contamination and growth of harmful bacteria results. When chilled foods are ground, the grinding process warms the food to the point where bacteria growth may start.

- Place meats that are cut, sliced, or diced in shallow containers, cover with lids or with waxed paper, and refrigerate immediately. The temperature of the meat cutting room should be maintained at 50 °F. Improper handling of meats can result in spoilage as well as in the transmission of disease.

- If you are using individual serving containers do not put ice on top of containers.

- All fresh pork products must be cooked to an internal temperature of 170 °F. Never serve raw pork products.

- Keep foods covered at all times except during actual preparation and serving.

- Palletize all subsistence items in storage spaces to facilitate cleaning and air circulation.

- Keep all worktables and benches clean at all times.

- Store food off the deck.

- Keep food-preparation utensils, meat grinders, and other similar equipment clean and handle them properly. Food that comes in contact with equipment that is contaminated becomes contaminated.

- Wash your hands before preparing food.

- Don't cough, sneeze, or talk over food while it is being prepared or served.

- Never smoke while you are preparing food. Saliva can be dropped on foods very easily when you are smoking.

- Keep fingers away from the mouth, lips, and face.

- Handle foods as little as possible.

- Use tongs to handle butter, doughnuts, bread, and other similar items of food. Do not use your hands.

The 3-Hour Rule

Protein foods that are not served immediately after they are cooked should either be chilled to temperatures of 40 °F or lower (but not frozen) or held at 140 °F or higher. Protein foods include meats, fish, poultry, gravies, meat stocks, soups, eggs, custards, cream fillings, and milk. Growth of harmful bacteria and the development of toxins (poisons) formed by the bacteria occur rapidly in cooked protein foods during holding at temperatures between 40 °F and 140 °F. Cooked protein foods that have been held at temperatures between 40 °F and 140 °F for more than 3 hours will be considered unfit for consumption and must be destroyed.

This principle is known as the 3-HOUR RULE. If the product is refrigerated at intervals and then permitted to warm up, the total time of the various periods between 40 °F and 140 °F must not be more than 3 hours. Protein foods composed of ingredients that are hand-peeled, hand-sliced, or hand-diced after they are cooked should never be used as leftovers; the 3-hour limit between temperatures of 40 °F and 140 °F is usually taken in preparing, chilling, and serving the food. These foods include potato salad, chicken salad, macaroni salad, shrimp salad, egg salad, and similar items. Hand preparation not only increases the chance of contamination, but generally increases the length of time that these foods are held at room temperatures. It is also dangerous to return opened jars or bowls of mayonnaise and cooked salad dressing from the salad bar to the refrigerator for reuse at a later meal because of the danger of miscalculation as to the total time that has elapsed from the time that these salad dressings have been held at temperatures between 40 °F and 140 °F.

Holding Temperatures

Holding temperatures are of utmost importance. Food held at temperatures that are too high or too low can ruin both the taste and the appearance of food as well as increase the risks of food-borne disease.

HOT FOODS.—The holding temperature of hot foods held on a serving line should be maintained at 180 °F to 200 °F.

COLD FOODS.—Keep cold foods such as salads, potato salad combinations, and ham plates cold by setting them on ice or on refrigerated salad bar units maintained at 34 °F to 40 °F.

BEVERAGES.—Beverages should be served hot or cold as applicable. As with food, the quality depends on proper preparation, holding, and dispensing. The preparation and holding of beverages are discussed in chapter 8.

Leftovers

When leftovers or warm foods are chilled, care must be taken to assure prompt and thorough chilling (40 °F or below) to the center of the food mass. Foods that are to be refrigerated should be placed in shallow pans to a depth of not more than 3 inches and must be covered with lids or waxed paper. Do not put leftovers in large, deep pans as chilling may take so long to get to the center of the food mass that sufficient time is allowed for the growth of harmful bacteria and development of toxins. Guard against any procedure that might delay cooling. Place foods to be chilled in the chill box immediately. Leftover food must not be saved for more than 36 hours. Freezing leftovers is prohibited. To prevent miscalculations in the length of time leftovers have been stored, all leftovers must be labeled with the date and time of preparation.

Frozen Foods

Frozen foods should be thawed in the refrigerator. Freezing breaks down tissue and because of this, foods can be invaded by germs more rapidly. Foods once frozen then thawed must not be refrozen. If not eaten, store under 40 °F.

Milk and Milk Products

Keep milk and milk products under refrigeration at all times. This means keeping them chilled on the serving line.

Fresh Fruits and Vegetables

Fresh fruits and vegetables should be washed thoroughly under running water to remove any particles of dirt or to remove poisonous insect sprays. Green vegetables of uncertain origin should be suspected of being contaminated with pathogenic organisms. They should be chemically sanitized by immersion for at least 15 minutes in a 100 ppm (parts per million) available chlorine solution, or 30 minutes in a 50 ppm available chlorine solution, or other approved method, and then thoroughly rinsed with potable water before they are cooked or served. Head items such as lettuce, cabbage, or celery must be broken apart before they are sanitized.

EQUIPMENT CLEAN

All phases of sanitation in a general mess are important. However, one of the most important is the proper cleaning and sanitizing of equipment (including trays, dishes, and other dinnerware) used for preparing, handling, cooking, and serving food.

Dishes may be washed by hand or by machine. Whatever the method, the final results may either be excellent or poor, depending upon how conscientiously you apply your knowledge and skill in using the equipment and materials provided. The best equipment and detergents will not do a good job of dishwashing if used improperly.

Types of Soil

Unless the galley equipment and utensils are thoroughly cleansed, food particles in which bacteria may grow will remain on them. These food soils are divided into several distinct types:

- Freshly deposited soil—the soil that remains immediately after the equipment or utensil has been used.

- Thin film—the soil that remains as the result of ineffective cleaning, following a flushing with water. Thin films are not easily seen and they are capable of sustaining germs.

- Built-up deposits—the result of repeated ineffective cleaning methods causing a day-by-day accumulation of soil.

- Dried deposits—accumulations that result from drying action and formation of heavy crusty deposit.

- Baked deposits—deposits that have been baked onto equipment and have become difficult to remove.

Removing Stubborn Soils

The Navy procures the correct type of detergent to be used in washing food preparation vides temperatures that increase the chemical activities of the various ingredients in properly compounded detergents. Friction is an important part of cleaning. The required friction may be applied by brushing with approved brushes or by strong flushing, as in dishwashing machines. Hard abrasives should never be used on any metal surface. They result in scratches that provide lodging places for soil. It is recommended that pots and pans, cooking utensils, and other such items be presoaked to loosen any food clinging to the utensil. Then they should be washed, using the proper detergent compound and hot water. A detergent increases the effectiveness of the water as a cleaning agent. The washed pots and pans must be rinsed with hot water at 125°F, then sanitized for 30 seconds in hot water of 170°F. Once washed and sanitized, the clean pots and pans should be stored, bottoms up, in clean racks. Otherwise, the effort spent in washing and sanitizing them is wasted.

Figure 3-1 shows the temperatures necessary for the proper cleaning and sanitizing of foodservice equipment and utensils.

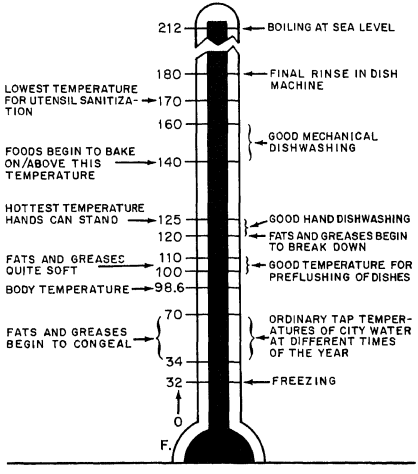


Figure 3-1.—Temperature necessary for proper sanitizing of foodservice equipment and utensils.

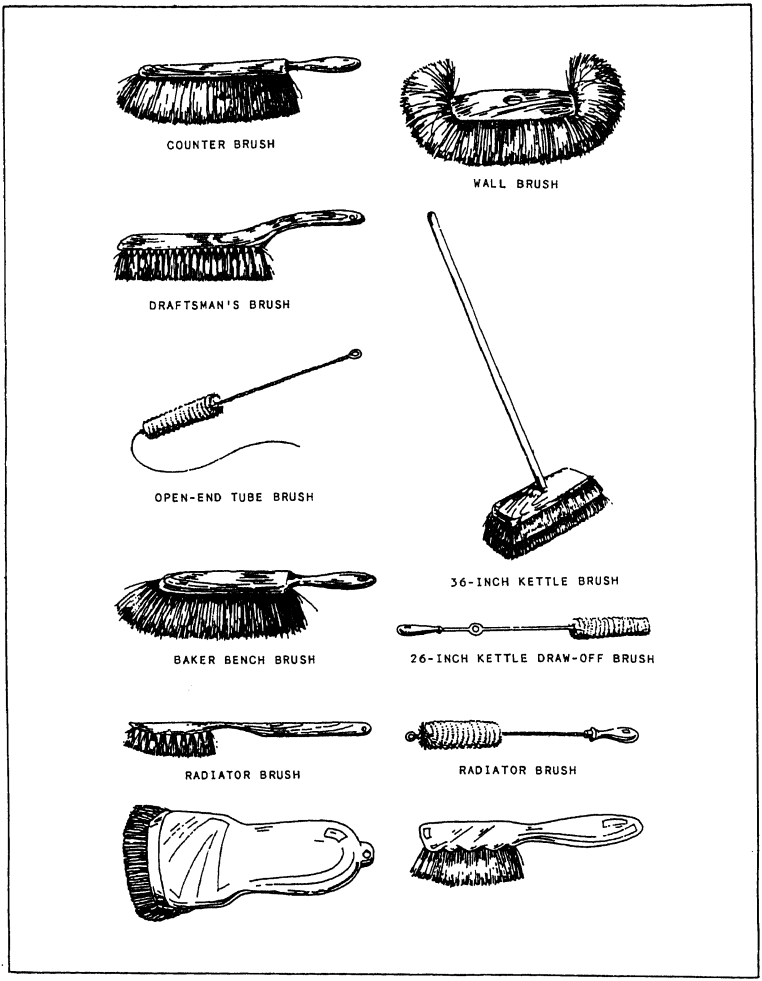


Figure 3-2.—Types of brushes and their specific uses.

BRUSHES.—Refer to figure 3-2 for the types of brushes and their uses that are normally found in messes.

CLEANING AGENTS.—There are two general classes of cleaning compounds, soaps and detergents. Both are good cleaning agents. Soaps, for instance, have valuable properties for certain cleaning operations, but also have limitations for other uses. Soap should not be used for dishwashing because the excess sudsing clogs the dishwashing machines and the soap leaves a residue on the dishware and dishwashing equipment. Detergents are superior as cleaning compounds. Detergents are grouped according to the work they do; for example, hand dishwashing and heavy-duty cleaning such as roasting pans. For detailed information on the makeup and uses of soaps and detergents, refer to the NAVSUP P-421, chapter 2.

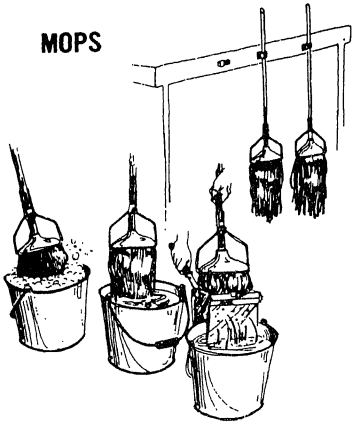
Sanitizing Cleaning Gear

Brushes, brooms, and swabs require cleaning and sanitizing. Figure 3-3 shows how to care for mops and brushes.

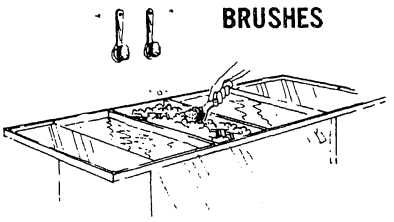
Dishwashing

Dishwashing in the messes is done by the manual method (hand dishwashing) or by machine dishwashing.

HAND DISHWASHING.—The equipment provided for manual dishwashing varies



1. Wash thoroughly after use in fresh, hot detergent water.
2. Rinse in clean hot water to which a sanitizer has been added. Wring out.
3. Hang mop to dry thoroughly at least once a day.



1. Wash thoroughly in fresh, hot detergent water after use.
2. Rinse in hot running water; dip in water to which a sanitizer has been added.
3. Shake and hang to dry.

Do NOT allow brushes to rest on bristles. This will cause the bristles to bend and mat.

from a one-compartment sink to the preferred three-compartment sink. A remote dial thermometer and a booster heater should be installed under the final rinse compartment. Regardless of the type of sink on board your ship or station, refer to figures 3-4 and 3-5 and follow the procedures outlin there.

MACHINE DISHWASHING.—There a various types of automatic dishwashers used the Navy. The operation procedures f

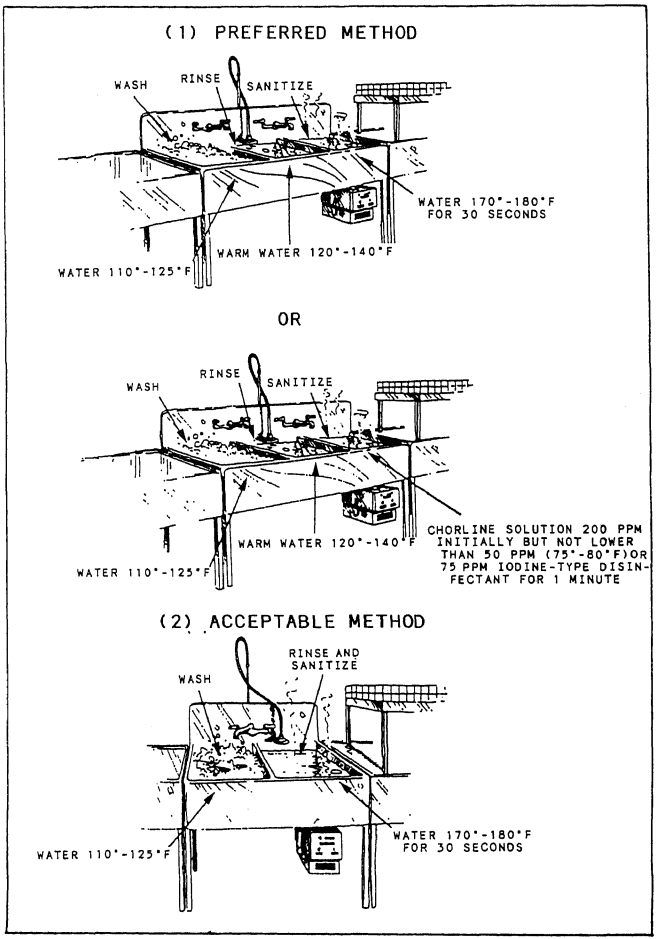


Figure 3-4.—Methods for manual washing of dishes and cooking and serving utensils.

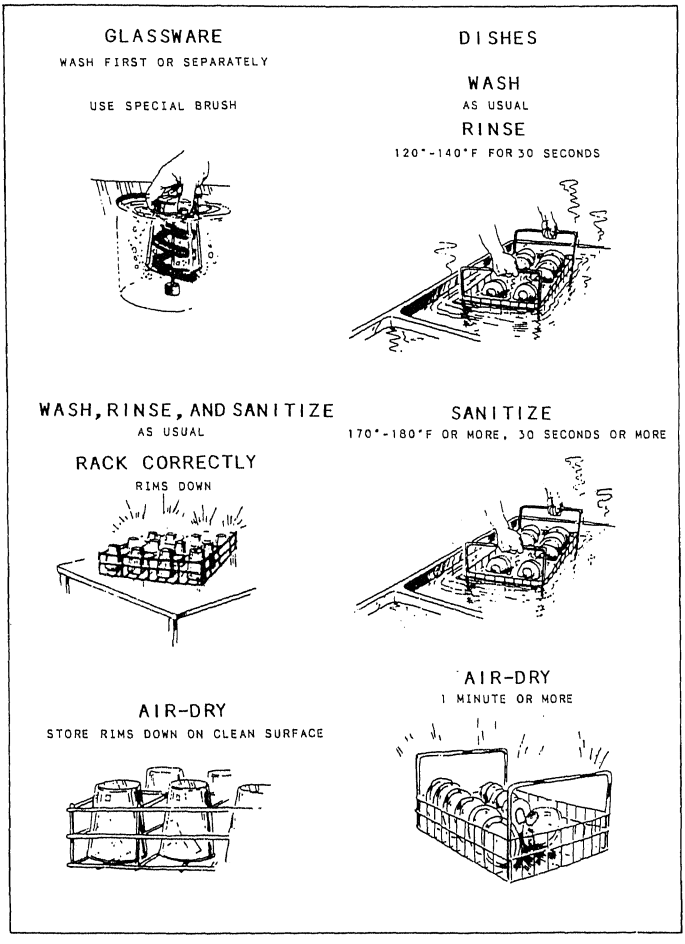


Figure 3-5.—Checkpoints in manual dishwashing.

dishwashers are covered in chapter 6, "Food-service Equipment."

CLEANLINESS OF FOODSERVICE SPACES

It will be easier to keep foodservice spaces clean and sanitary if everyone cooperates. Wipe up small spills before they are tracked all over the galley or into other spaces. This is not only easier, it could save someone (perhaps you) from a painful fall. Don't permit food scraps or debris to accumulate.

Clean As You Go

As an MS, you will often hear of the clean as you go policy, which simply means clean up your

mess as you work. Cleaning in this way helps to maintain high sanitation standards as well as cuts down on the cleanup time after the meal and at the end of the workday.

Trash and Garbage Removal

The method of collection and disposal of garbage may differ on various ships and stations, but the basic requirements are the same. Garbage must be disposed of promptly to prevent contamination of spaces and to eliminate a possible fire hazard. At sea, garbage and trash is normally disposed of by throwing it overboard. You should always check on the requirements for dumping and make sure the fantail is open before dumping any trash or garbage overboard.

When your ship is docked, garbage must be taken to the pier, where separate containers are provided for garbage and trash. Do not use trash cans for wet garbage. Always replace the lid on these cans, and do not spill garbage and refuse in dock areas. Remember, insects and rodents must have food and moisture, and garbage provides both.

In wartime, garbage or other objects must not be dumped overboard because they may provide clues to your location for enemy submarines or other craft. In such cases dispose of garbage according to the instructions of your ship.

Garbage Area Cleanliness

Garbage collection areas must be thoroughly cleaned each day. Never leave garbage or trash in the galley or wardroom overnight.

Plastic garbage can liners are available through the supply system, and their use reduces much of the work required to keep garbage cans clean. NEVERTHELESS, these cans must be scrubbed out daily.

Insect and Rodent Control

There are many kinds of galley pests, but the most common are flies, roaches, and mice (rarely rats). Great losses result from insect and rodent damage to subsistence and many other items of property in the absence of effective control programs.

Your commanding officer will set up such programs for the entire activity, but this does not relieve you of the responsibility for ensuring that precautions are carried out for insect and rodent control in galley spaces. The best control measures for insects and rodents are the proper cleaning of galley spaces and the proper collection and disposal of all refusé. Mice will not live where they cannot get food. The presence of roaches indicates unsanitary conditions. Such insects are carried aboard in crates of food; therefore, continuous high sanitation standards must be maintained.

To ensure that insects and rodents do not contaminate food, utensils, and dishes, you must maintain constant vigilance and observe the following rules:

1. Keep all galley spaces clean.
2. Clean up spilled foods immediately.
3. Be sure to thaw meat in the thaw box—never in the passageway or on the galley deck.
4. Cover all foods that are not actually being prepared.
5. Leave no food exposed overnight.
6. Keep equipment clean.
7. Remove all crumbs and food particles from tables at the end of each meal.
8. Dispose of all refuse promptly.
9. Keep refuse cans covered tightly; empty, wash, and sanitize them regularly.
10. Kill flies and roaches with sprays and powders.
11. Use traps for catching rats and mice.

When routine sanitary measures do not effectively control or eliminate insects and rodents, notify your medical officer.

Space Cleanliness

In most foodservice operations, a space inspection is conducted before securing. At most commands the inspection is conducted by the duty supply officer or a senior MS. Areas of concern are sanitation, fire, and security.

Always remember that strict sanitation procedures should be followed in all areas of a foodservice operation. Cleanliness can never be overemphasized.

DEFENSE AGAINST RADIOLOGICAL AGENTS

Radiological defense includes all such measures as are taken to minimize personnel and material damage from radioactivity. The basic responsibility for this function resides with the damage control organization of the ship or

station. Your basic guidance in radiological defense matters will come from them. Supply department personnel are normally assigned appropriate duties according to the damage control plan. You should be aware of the plans and procedures to be followed on board your ship or station.

Emergency operations are those that immediately follow the blast. During this period, a realistic evaluation of the disaster is made, and initial steps toward recovery are taken. Protective clothing monitoring equipment and decontamination gear will be needed.

RADIOLOGICAL CONTAMINATION

Blast damage and thermal radiation may result in partial or complete destruction of messing facilities and food items. Radioactivity is important because of the effect it has on the human body. Because of its ability to penetrate matter deeply, gamma radiation is usually considered to be the most hazardous. Since the principal source of alpha particles would be the unfissioned nuclear material of the weapon, the probability of significant alpha contamination from nuclear detonation is small. Beta particles have poor penetrating ability. Ordinary clothing will stop beta particles. They enter the skin only to a depth of about one-fifth of an inch, but their ionizing power is about 100 times that of gamma rays. When ingested with food, inhaled, or admitted into the body through cuts or open wounds, beta particles meet no barriers and become particularly destructive if they are retained in the body for some time. Therefore, in food preparation and service, all forms of radioactivity should be regarded as hazardous.

Radioactivity may be introduced into exposed materials that are close to the burst. Such items as soap, table salt, copper, or brass may become radioactive as a result of radiation (the action of neutrons). Radioactivity may also be carried by blast residues, the principal one being dust particles. A person contaminated by radioactive materials can easily contaminate an otherwise safe object or area. If the person handles foods, the foods can become contaminated. Radioactivity cannot be destroyed by cooking or sterilization, or neutralized by chemical treatment. It must be removed as completely as possible to a limit of radioactivity set by the command authority in the light of existing circumstances.

MONITORING TO DETERMINE EXTENT OF RADIOACTIVITY

Radioactive materials can only be removed by physical means. The extent of radioactivity existing in any food preparation or serving area should be determined by a survey with radiac monitoring equipment. This includes the galley utensils, food for preparation, dinnerware, the scullery, and all personnel involved in food preparation and service. If the survey so indicates, it may be necessary to reestablish the mess in another area designated as safe by the commanding officer.

The supply officer is responsible for taking the necessary precautions to ensure that the food served is free from radioactive contamination. Galleys and other food preparation spaces, food, equipment, utensils, dinnerware, and personnel engaged in the foodservice operation should be carefully monitored by qualified persons with appropriate monitoring equipment to ascertain the presence and the extent of radioactive contamination.

Decontamination operations should be carried out as required. Food items in glass or metal containers or sealed in barrier-wrap packages are the least likely to be contaminated. These should, nevertheless, be monitored, and care should be exercised upon opening such packages to avoid contamination. The fresh water supply should be monitored. Food items should be monitored in their dry state because dilution with water will substantially lower the beta readings and the presence of alpha particles may not even show up on radiac instruments. All food items, when they have been monitored, must be clearly marked as "Contaminated" or "Safe For Use." All food items should be cleared for use after monitoring if found to be within acceptable limits established by the local command according to the *Radiation Health Protection Manual*, NAVMED P-5055.

RADIOLOGICAL DECONTAMINATION

There are various methods of removing contamination. They differ in effectiveness in removing the contaminant, in applicability to given surfaces, and in the rate of operation. These, in general, fall into two classes, gross or rough decontamination and detailed decontamination. Gross decontamination consists of a rapid washing down with large quantities of uncontaminated water from a fire hose or nozzle

system. This class is generally not suitable for use in galley and messing areas except for decks. Detailed decontamination procedures are more thorough. These procedures are costly in time, manpower, and material, but they are more effective. Detailed decontamination will be necessary in galley and messing areas. Efforts to decontaminate with heavily contaminated water will obviously be ineffective; however, water contaminated to a lesser degree than the surface contamination to be removed may still be used. Water used for decontamination must be allowed to drain freely from contaminated areas. Water from tightly covered storage tanks should be safe and potable, provided the circulating system is tight. Water from open reservoirs cannot be relied upon to be free from contamination. Seawater in the neighborhood of an aerial burst to windward will be contaminated at the surface. A subsurface burst will heavily contaminate seawater in the vicinity. General knowledge of the local situation and a monitor survey should provide data on which a decision regarding the water supply will be based.

When materials (cleaning agents) specifically designed for the removal of radioactive contaminants are available, they should be used according to instructions. When they are not available, the following solutions are suggested for the general cleaning of galley surfaces:

Formula 1

Detergent general-purpose, liquid, water-soluble, type I, 1/2 pound. Military specification MIL-D-16791.

Sodium phosphate, tribasic, technical (trisodium phosphate), 1/2 pound. Federal specification O-S-642, type II.

Water, hot, 12 gallons, 100 pounds.

Directions: The sodium phosphate should be completely dissolved by stirring it into hot water. The syrupy liquid detergent should be added and stirred until it is thoroughly dispersed.

Formula 2

Dishwashing compound, machine, granular, free flowing. Federal specification P-D-425a (specify whether hard or soft water will be used).

Directions: The compound should be dissolved in hot water to make a 0.5 percent (approximate) solution (1 pound per 25 gallons of water).

The solution should be hot when it is used.

Formula 3

Citric acid, monohydrate, granular form. Military specification MIL-A-11029 (Cml), change No. 3223.

Directions: Citric acid should be dissolved by stirring to make a 3 percent (approximate) solution (3 pounds per 12 gallons of water). In use, utensils should be immersed and metal surfaces should be sprayed.

Except for citric acid, the above materials are commonly used and are readily available. The suggested formulas are not intended to take the place of agents specified in existing decontamination instructions. They constitute the bare minimum as substitutes and should serve to meet immediate emergency requirements. All chemical cleaning agents function most efficiently when hot. The choice of method and cleaning agent to be used should depend upon the nature of the surface to be decontaminated, the kind and degree of contamination, and the time, manpower, and materials available to do the work.

Decontaminating Foods

All food should be carefully monitored. Foods in metal or glass packages may be safe. Contamination is best removed from the external surfaces by washing. Food items in sealed, dustproof packages may also be safe, provided the wrapper is not broken. To remove the contamination from these packages, vacuum them and carefully remove the outer wrap. Some vegetables can also be decontaminated if they are carefully washed, dried, monitored, and peeled—if monitoring shows contamination is not above specified limits. When surface contamination cannot be physically removed, the food should be condemned. All foods must be inspected and approved by the medical officer.

Decontaminating Spaces and Equipment

Thorough cleaning of all surfaces is vital. Work should commence overhead and continue downward in the direction of liquid flow. When feasible, the first step should consist of flushing the surfaces with safe water. DO NOT get water on electrical controls that are not waterproofed. The second step involves systematic scrubbing with chemical cleaning agents. Piping, ductwork,

stanchions, bulkheads, coamings, and decks should be repeatedly scrubbed until monitoring indicates that a safe condition exists. Bare metal surfaces should be given an initial scrubbing with alkaline detergents to remove grease film. When available, citric acid solution should then be applied and allowed to remain for a minimum period of 10 minutes. Rinse the surface with safe, fresh water, allow to dry, and monitor. In the absence of citric acid, vinegar may be used, but it is less effective.

Decontaminating Utensils and Dinnerware

Treat metal utensils and dinnerware such as metal tableware and cutlery in the same manner as other metal surfaces. Wash with a detergent followed by an acid treatment. When possible, immerse utensils and dinnerware in the acid solution. Crockery and glass present no particular cleaning problem, provided the glazed surfaces are without scratches or foreign deposits such as stains or hard water scale. Plastic ware may present some difficulty because of the relatively porous character of the surface, scratches, and the presence of foreign deposits. Both glass and plastic ware should be machine washed, rinsed, dried, and each item monitored. Those that do not pass should be inspected for cracks and surface defects. Cracked and badly scratched items should be disposed of immediately. The other items still showing contamination should be given repeated washings until safe, or they should be segregated to await natural decay of contamination or disposal of the item.

Protection of Personnel

When you are engaged in decontamination, wear protective clothing as prescribed by the ship's damage control bill. If protective clothing is not available, similar garments may be substituted. Care must be taken to make sure that substitute clothing adequately prevents radioactive particles from coming in contact with the skin or gaining entry to the body by ingestion, inhalation, or through breaks in the skin. Masks should be worn. In the absence of regulation masks, goggles or glasses should be worn to protect the eyes. A filter improvised from several layers of Turkish toweling should be worn over the nose and mouth to protect the lungs.

Spaces that were not contaminated, or that have been decontaminated, must be carefully protected. All personnel and material must be carefully monitored (decontaminated if needed) before anyone is permitted to enter these spaces. Cleaning gear, items of protective clothing, and so forth, used in decontamination procedures should be segregated and disposed of as contaminated according to their level of contamination.

To familiarize yourself with protective clothing and equipment, and with the procedure for adapting regular issue clothing for NBC warfare protection, see *Military Requirements for Petty Officer Third Class*, NAVEDTRA 10044-A.

Preventing Recontamination

Contaminated items brought accidentally into spaces should be removed and, pending decontamination of the affected areas, these areas should be roped off. Personnel who may have walked through these areas or who may have otherwise come in contact with radioactive particles should be sent to the decontamination station.

DEFENSE AGAINST BIOLOGICAL AGENTS

The United States has renounced all use of biological agents in warfare, but the need still exists to be prepared to defend ourselves against these agents if other countries should use them. The following section, therefore, discusses the nature of biological agents and the measures you should use to decontaminate the galley, messing areas, and food storage spaces in the event of enemy biological attack.

A biological agent is defined as a microorganism that either causes disease in man, plants, and animals or causes the deterioration of material.

The chief objective of biological agents is mass infection that results in the incapacitation or death of large numbers of individuals or in the destruction of their sources of food, both animal and plant. The biological agents, unlike most other weapons, act on living matter only and are limited in use to these objectives.

In case of a biological attack, there are certain instructions that should be carried out for the protection and decontamination of eating, drinking, and galley utensils; galley and

foodservice equipment; and messing areas contaminated by biological agents.

Good sanitary and hygienic practices are the best defense against many aspects of biological warfare. A close examination of the cleanliness of the mess and strict adherence to the applicable instructions will improve biological defense greatly.

The problems of biological agents differ from ordinary military hygiene problems only in that hardier types of organisms may be present in other than their normal environment and in higher levels of contamination.

BIOLOGICAL CONTAMINATION

In treating the problem of biological attack, it is assumed that there could be contamination of personnel, of all exposed surfaces, and of circulating air. Because of the current difficulties in rapidly detecting biological agents, knowledge of contamination might (although not necessarily) be based on the occurrence of widespread or unusual sickness. This sickness could be caused by contamination that had occurred several days or weeks before. A situation could exist also whereby extensive employment of biological agents would require additional precautions in the operation of all messes. These instructions are intended for use in the event of suspected or known biological attack. The problem is to decontaminate and prevent recontamination.

BIOLOGICAL DECONTAMINATION METHODS

Formalin vaporized by an insecticide fog applicator is an effective decontaminant and should be used under most circumstances for decontamination of galley and foodservice spaces. It is somewhat corrosive and leaves a disagreeable formaldehyde odor which is difficult to remove. Formalin vapor limitations are as follows:

1. It is toxic to man.
2. It must remain 16 to 24 hours to be effective.
3. It damages delicate instruments.
4. Spaces must be aired for 24 hours after its use.
5. Masks, protective clothing, and rubber gloves must be worn by all personnel in the area.

Ethylene oxide gas also is an effective decontaminant. It leaves no objectionable odors and is noncorrosive. It is, however, practical only for small spaces, requires considerable preparation, and is not always available. It is used primarily to decontaminate equipment. Ethylene oxide gas limitations are as follows:

1. It is highly explosive.
2. It is toxic.
3. Masks, protective clothing, and gloves must be worn by all personnel in the area.

If neither formalin nor ethylene oxide is available or if their use as fumigants is not feasible, the interior surfaces of the contaminated spaces should be scrubbed down with an effective detergent solution (discussed in the "Radiological Decontamination" section earlier in this chapter) to remove dust, grease, and so forth. Next, surfaces should be hosed with safe, fresh water to remove residual soil and detergent solution; then surfaces should be sprayed or scrubbed with water to which 200 ppm (parts per million) available chlorine has been added. Iodophors solution, phenolic solutions, or formalin solutions—although they are less desirable than chlorine—may be used if prepared as advised by the medical department.

Large equipment (those items too large to be immersed in sinks or run through dishwashing machines) should be washed, rinsed, and decontaminated in the same manner as prescribed for interior surfaces of messes. Small items of equipment that will not suffer damage by immersion should be washed, rinsed, and sanitized in the dishwashing machine or by hand dishwashing as described earlier in this chapter.

Before eating and drinking utensils are brought to the scullery for decontamination, the interior bulkheads, all working surfaces (tables, dish carts, and sinks), the interior and exterior of the dishwashing machine, and all other equipment used in the washing and sanitizing of eating and drinking utensils should be thoroughly washed, rinsed, and decontaminated as appropriate with formalin, ethylene oxide, or a detergent solution. Remember, both formalin and ethylene oxide are toxic to man. Therefore, after they are used to decontaminate equipment or spaces, a rinsing in safe water should be given all affected areas.

Eating and drinking utensils should be decontaminated by machine or hand washing. A person who has handled contaminated utensils should not handle decontaminated utensils until

the person has been decontaminated. Decontaminated articles should not be placed in contact with any surface that has been exposed to contamination. If possible, use baskets or containers designed to hold silverware in a vertical position, handle down, during the washing and sanitizing processes, and additional containers of similar construction into which the silverware may be inverted without being handled by workers. If such containers are not available, lay the silverware flat in the racks with the handles extending in the same direction. Do not exceed a depth of two utensils. Take care when removing utensils from the racks after decontamination to prevent recontamination.

Sterilization by hypochlorite solution should be used only when dishwashing machines do not operate correctly. The utensils should be soaked, while still in the washrack, for 1 full minute at 100°F to 140°F in a solution of 1 part hypochlorite and 50 parts water in a single-tank machine, or 1 part hypochlorite and 500 parts water in a double-tank machine; one-fifth of 1 percent of a detergent must be added to either solution. This solution may be mixed from nonionic detergent and with any one of several chlorine containing compounds such as calcium hypochlorite, sodium hypochlorite (Javelle water), or chlorinated lime.

In storage, compounds containing chlorine have been known to deteriorate. It will be necessary, therefore, to have a qualified person from the ship's company analyze the soaking solution for chlorine content to make sure that the proper concentration of available chlorine is attained and continued at sufficient strength.

After the sterilization, soak and water rinse, cover the washracks containing the utensils with a cloth that has been sterilized by boiling. Do not transfer utensils to another rack. Make sure that personnel in the serving line pick up utensils from the washracks by touching only the handles.

Large equipment may be decontaminated by the use of hypochlorites. Hypochlorites are corrosive to all metals that will rust and should not be allowed to come in contact with motors and other electrical equipment from which such hypochlorites could not be thoroughly wiped off. After decontamination, cover as much of the equipment as possible with a sterile cloth.

Avoidance of Recontamination

Recontamination may be caused by secondary aerosols that resettle organisms on surfaces or contaminate the air that is breathed. Secondary aerosols are clouds formed from particles (bacteria or other organisms) that, having been deposited on a surface, are stirred up into the air again by scuffing, shaking, or other mechanical action. Secondary aerosols may be suppressed by wetting surfaces with oil or water.

It is important to make sure that, before entering the messing area, MS personnel and all personnel eating in the messing areas are as free as possible from contamination. The medical officer should be consulted on the decontamination of foodservice personnel. In cold weather, personnel in the serving line should be required to remove outer garments and leave them outside the messing area before entering the mess. It has been found that removing clothing will shake off organisms that have come in contact with the surfaces, thereby setting up secondary aerosols. Do not permit unauthorized personnel in foodservice spaces.

Decontaminating Food Items

The advice of the medical officer must be sought before any attempt is made to decontaminate food suspected of biological contamination.

Semiperishable Food Items

Food packed in containers that are resistant to the passage of biological agents (sealed containers made of metal, plastic, glass, or porcelain) requires only that proper exterior decontamination be performed. Paper labels and paper covers must be removed from the container and one of the following methods of decontamination should be used:

1. Immerse the containers for 15 minutes in a solution of water to which 200 ppm available chlorine has been added and then rinse them with potable water.
2. Soak the containers for a minimum of 15 minutes in effective detergent solution as an expedient method to reduce contamination to a safe level (see formula 1 discussed under the heading "Radiological Decontamination"); then rinse them with potable water.
3. The exterior surfaces of stacks of food packed in impermeable packages can be sterilized by vapor disinfectant, such as formalin or ethylene oxide.

Food packages that will not stand immersion must be wiped off with a solution of water to which 200 ppm available chlorine has been added and the food thoroughly cooked before it is eaten.

Food packaged in sacks or other permeable containers can be decontaminated with ethylene oxide, but because of the limited availability of this product it is recommended that in any event such foods be thoroughly cooked before they are eaten.

Fresh or Chill Items

Food that can be peeled or pared may be decontaminated by soaking for 15 minutes in water to which 200 ppm available chlorine has been added before it is peeled. The food must then be thoroughly rinsed in potable water. It can then be peeled or pared and should be rinsed again with potable water. This method has been applied satisfactorily to apples, potatoes, and eggs.

For other fresh or chill items, the use of heat is the most practical means of decontaminating foods. Thorough cooking will reduce contamination to a safe level so that food can be consumed. Specific methods to be followed in this form of decontamination are discussed later under the heading "Food Preparation Guidelines."

Frozen Items

Food items stowed in the freeze space in impermeable containers (canned frozen strawberries, for example) may be decontaminated by immersing the containers for 15 minutes in a solution of water to which 200 ppm available chlorine has been added; the containers are then rinsed with potable water.

Food items stowed in the freeze space in permeable containers (frozen vegetables, for example) may be decontaminated as outlined earlier for food packaged in sacks or other permeable containers.

Food items stowed in the freeze space, but not contained in outer packaging (meat, for example), must be completely thawed and thoroughly cooked before they are eaten.

Additional Precautions

Hands should be free of contamination during the opening operations to ensure that the contents are not contaminated. Opened cans of fruit jam, jelly, or similar foods must be destroyed. Opened cans of vegetables may be decontaminated by boiling the vegetables for a minimum of 15 minutes in a steam-jacketed kettle.

Biological Decontamination in Food Preparation

The use of heat is the most practical means of decontaminating biologically contaminated foods. In no case should decontaminated food be consumed until it is pronounced safe by a medical officer. It is recommended that, insofar as possible, only foods contained in impermeable packages (cans, bottles, jars) be decontaminated and used for meal preparation.

Food items that are not packaged or that are packaged in permeable containers may be cooked by either of the following methods:

1. In a pressure-type cooker at 15 pounds' pressure at 250 °F (or 121 °C) for 15 minutes
2. Boiling for a minimum of 15 minutes

Certain contaminated items may be decontaminated by baking. Only those recipes listed in the *Armed Forces Recipe Service* that specify an oven temperature of 400 °F and above, for a cooking period of 30 minutes or longer, should be used to prepare baked items from contaminated ingredients.

All meats except those contained in decontaminated impermeable containers (canned meat items) must be cooked to the well-done stage. Guidance cards in the *Armed Forces Recipe Service* include information on internal temperature indicating the well-done state.

Biological Decontamination of Water

The detection of water contamination and requisite laboratory analysis are responsibilities of the medical department. Biological decontamination of water is not difficult when regular water treatment facilities exist. However, more chlorine probably will need to be added during the ordinary processing of the water. If no water treatment facilities are available, water can be decontaminated by any of the following methods:

1. By boiling for 20 minutes
2. By distillation, if equipment is available
3. By using iodine tablets coupled with boiling

A medical officer should approve the method of decontaminating; after the decontamination

process, the officer should determine whether or not the water is fit to be used.

Water that has been decontaminated must be protected against further contamination.

DEFENSE AGAINST CHEMICAL AGENTS

The United States has committed itself against initiating the use of chemical agents. However, it is necessary to be prepared against attack by an enemy using this type of warfare.

A chemical agent is defined as a solid, liquid, or gas that, through its chemical properties, produces lethal or damaging effects on man, animals, plants, or material, or produces a screening or signaling smoke.

Chemical warfare agents, like the biological warfare agents, are used mainly because of their effect on personnel, although some agents will have a corrosive effect on specific materials, and incendiary devices will burn most materials. These agents produce a harmful physiological reaction when applied to the body externally, inhaled, or ingested. Most chemical agents cause disorganization of the functioning of the body.

The degree of contamination of the messing area and equipment depends on the chemical agent used and the factors involved, such as the method of delivery (vapor, light liquid, and heavy liquid), the weather, and the various strengths of contamination.

The following paragraphs prescribe the methods to be used in decontaminating eating, drinking, and galley utensils; galley and food-service equipment; and messing areas that are contaminated by chemical agents.

VAPOR CONTAMINATIONS

After the surrounding areas have been decontaminated, the entire general mess should be aerated thoroughly and the entire area washed down inside and out with safe water. All equipment and utensils used in the preparation and service of food should be washed carefully using normal procedures. Spaces, utensils, and equipment should then be tested with the chemical agent detector kit and, if necessary, any of the prescribed procedures should be repeated.

LIGHT LIQUID CONTAMINATION

The messing area inside and out, should be washed with hot water. You may add an alkaline detergent, such as a standard dishwashing compound, and if applied at high pressure, it will increase the water's effectiveness. As an alternative method, for mustard gas, you may apply a bleach slurry to all surfaces. After washing down, aerate the entire area. If slight contamination remains, the area should be heated to as high a temperature as possible for about 1 to 2 hours. Then the spaces should be opened and ventilated for 15 minutes. Repeat the procedure as necessary, testing at intervals with a chemical agent detector kit. Porous objects, such as meat blocks and wooden benches, may absorb liquid contamination to the extent that they will have to be destroyed. Metal, glass, or china utensils or any equipment that is not damaged by water should be immersed for 30 minutes in actively boiling water. Add 1 cupful of alkaline detergent to each 5 gallons of water. Upon completion of the boiling process, you should follow normal dishwashing procedures. Plastics generally cannot withstand boiling water and should be destroyed.

HEAVY LIQUID CONTAMINATION

Heavy liquid contamination is unlikely, except from a direct hit, in which case recovery of the space and contents will be a major undertaking. However, when such is the case, the following procedures are recommended.

Space should be roped off or abandoned as unsalvageable, as no amount of washing or scrubbing of a porous surface that is heavily contaminated by a liquid chemical agent (particularly mustard gas) is likely to do much good.

Metal, glass, or china utensils or any equipment that is not damaged by water should be decontaminated in the same manner as prescribed for light liquid contamination discussed earlier.

Large equipment unsuited for immersion in boiling water should be scrubbed vigorously with DS2 solution or hot water and an alkaline detergent, rinsed, disassembled, and scrubbed again paying particular attention to any parts not reached in the assembled state that are reachable in the disassembled state. Then, the equipment should be rinsed, dried, oiled, greased, and reassembled. Wooden items should be removed and destroyed.

On electrical equipment, unless the electrical unit is enclosed in a watertight seal, water must not be used in the decontamination process. Electrical equipment should be cleaned with trichloroethane, technical (methyl) chloroform, or DS2 solution. All greases must be removed, bearings cleaned, and the equipment regreased.

DS2 is flammable and irritating to the skin. Protective clothing and masks should be worn when it is used.

Careful inspection must be made of the general situation before large quantities of food or water suspected of chemical agent contamination are destroyed. Contaminated food and water must be destroyed in some cases; in other cases, they may be salvaged by special decontamination procedures. In any event, the responsibility belongs to the medical department to determine whether food or water contaminated by chemical agents should be decontaminated or destroyed.

CHAPTER 4

PROCUREMENT, RECEIPT, INSPECTION, AND STORAGE OF FOOD ITEMS

In the early years of the Navy, a civil officer known as a purser was responsible for supplying the ship with provisions. The officer was appointed by warrant and was a forerunner of today's supply officer. The purser was assisted by a steward, usually called "jack of the breadroom," which later became "jack-o-the-dust." Today, the term *jack-of-the-dust* refers to the subsistence issue room storekeeper.

As a Mess Management Specialist, you may be assigned either as the jack-of-the-dust or as the subsistence bulk storeroom storekeeper. The bulk storeroom storekeeper is mainly responsible for the proper receipt and storage of food items. Specifically, this involves keeping the spaces clean, safe, and orderly, and making sure the proper stock levels are maintained.

This chapter discusses the procedures for the procurement, receipt, inspection, and storage of food items for the general mess as prescribed by *Foodservice Management*, NAVSUP P-486, volume I, and the private messes as prescribed in volume II of the same reference.

This chapter is also intended to help familiarize you with the following:

- How to use the *Federal Supply Catalog*, Group 89
- The normal procurement sources for the general mess and private messes
- How to determine subsistence requirements
- Forms used to requisition food items
- Use of the Requisition Log, NAVSUP Form 1336
- Receipt and inspection procedures
- Procedure for posting receipts
- Principles used for stock storage and rotation
- Factors that affect buildup of ice on refrigerator coils
- Procedures for defrosting and cleaning refrigerated spaces

PROCUREMENT

Replenishment of the supplies of food for your ship requires that you have a thorough knowledge of procedures if you are to obtain all the various items you need, in the appropriate quantities, and at the time you need them. You must know how to identify the items, where to procure them, how to decide the quantities needed, how to fill out the appropriate requisition forms or purchase orders, and how to keep records of the requisitions and purchase orders you have submitted.

GENERAL MESS

Stock Identification

The *Federal Supply Catalog*, Federal Supply Classification (FSC) Group 89, Subsistence, lists all items authorized for procurement in the general mess.

This catalog uses a letter coding system to indicate authorized usage for a group 89 item, such as overseas or afloat use, submarines and ships with 99 crew members or less, and so forth. You should familiarize yourself with this catalog and the coding system to facilitate ordering and to prevent making errors in ordering food items for your mess.

The FSC group 89 section of this catalog also instructs you to refer to current Navy Food Service Systems Office (NAVFSSO) notices and instructions and the NAVSUP P-486, volume I, chapter 3, to determine requisitioning requirements, to find items not authorized for use in general messes, to find items authorized in general messes with less than 49 crew members, and to give guidelines for special feeding operations and sales to private messes. Each food item is identified by a 13-digit number known as a national stock number (NSN). In addition to the nomenclature, NSN, and unit of issue (U/I), this section gives the source of supply and the perishability codes. All items are identified as either semiperishable (SP) or perishable (P).

The term *perishable* is applied to those items that must be kept under refrigeration and includes fresh fruits and vegetables, frozen meats, frozen fruits and vegetables, and dairy products. *Semiperishable* items are those that do not require refrigeration, such as canned fruits and vegetables, packaged flour and rice, and so forth.

Sources of Supply

The normal sources of supply for food items are the nearest supply support activities or stores ships. Some items, such as fresh dairy and commercial bakery products, are available on indefinite delivery contracts. However, when necessary, these items may be procured from ships other than those previously mentioned, or other government activities ashore, or by local purchase from commercial sources. Local purchase from commercial sources may be made only when items cannot be obtained from normal sources. Items purchased in foreign countries must be consumed while the ship is deployed and must not be brought into a United States port. Therefore, only limited quantities of essential food items should be procured from foreign commercial sources.

Determination of Requirements

On most ships, high and low limits for food items have been established. These limits may change slightly on occasion based on the quarterly usage data and the skill of the menu planner.

HIGH LIMIT.—The high limit is the maximum quantity of material to be maintained on hand and on order to meet current operational requirements.

LOW LIMIT.—The low limit is the minimum quantity of material to be maintained on hand to sustain current operations.

High and low limits are discussed more extensively in the NAVSUP P-486, volume I, chapter 3.

SUBSISTENCE LOADING GUIDE, NAVSUP P-346.—When local or applicable usage data from a similar size ship is not available for use in planning load lists, you may refer to the NAVSUP P-346 for assistance. This guide is also a helpful tool for Mess Management Specialists (MSs) who have had limited experience in planning load lists.

Requisitioning Procedures

Requisitions, delivery orders, and purchase orders for authorized food items will be prepared according to applicable provisions of NAVSUP Publications 485, 486, and 487. These items should be obtained from normal supply sources.

Requisition Documents

The form used for ordering food items depends on the nature of the items and the

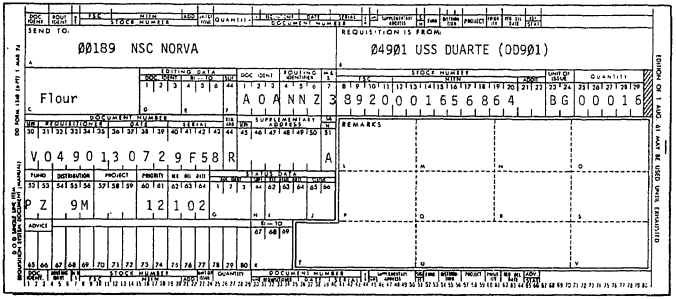


Figure 4-1.—DD Form 1348m.

requirements of the issuing activity. The different forms and their preparation are discussed next.

DD FORM 1348.—The bulk of your food items will be procured by submitting DOD Single Line Item Requisition System Document, DD Form 1348 or 1348m, as required by the supply support activity. Normally, this form is used for semiperishable food items authorized for use in the general mess.

The DD Form 1348 is a manual requisition and all entries must be made using a typewriter when you are preparing the data blocks.

DD FORM 1348m.—Nonautomated activities receiving semiperishable food items from a mechanized supply activity within the continental United States (CONUS) are provided prepunched and interpreted decks of DD Forms 1348m (actually cards) for all semiperishable food items authorized for use in the general mess. Refer to the NAVSUP P-486, volume I, chapter 6, for information concerning prepunched data on the 1348m. Figure 4-1 illustrates the DD Form 1348m.

DD FORM 1149.—This form is used to transfer food items between general messes, make issues to Military Sealift Commands (MSCs), and transfer money values of food items between submarine crews. See figures 4-2 and 4-3 for illustrations of a prepared DD Form 1149.

NAVSUP FORM 1282.—Navy Stock Account (NSA) food items and related records are normally retained by the supply officer at ashore activities. Food items (or breakouts) transferred to the general mess are normally made on a Food-Item Request/Issue Document, NAVSUP Form 1282, or a Food Item Report/Master Food Code List, NAVSUP Form 1059, or on a locally prepared document.

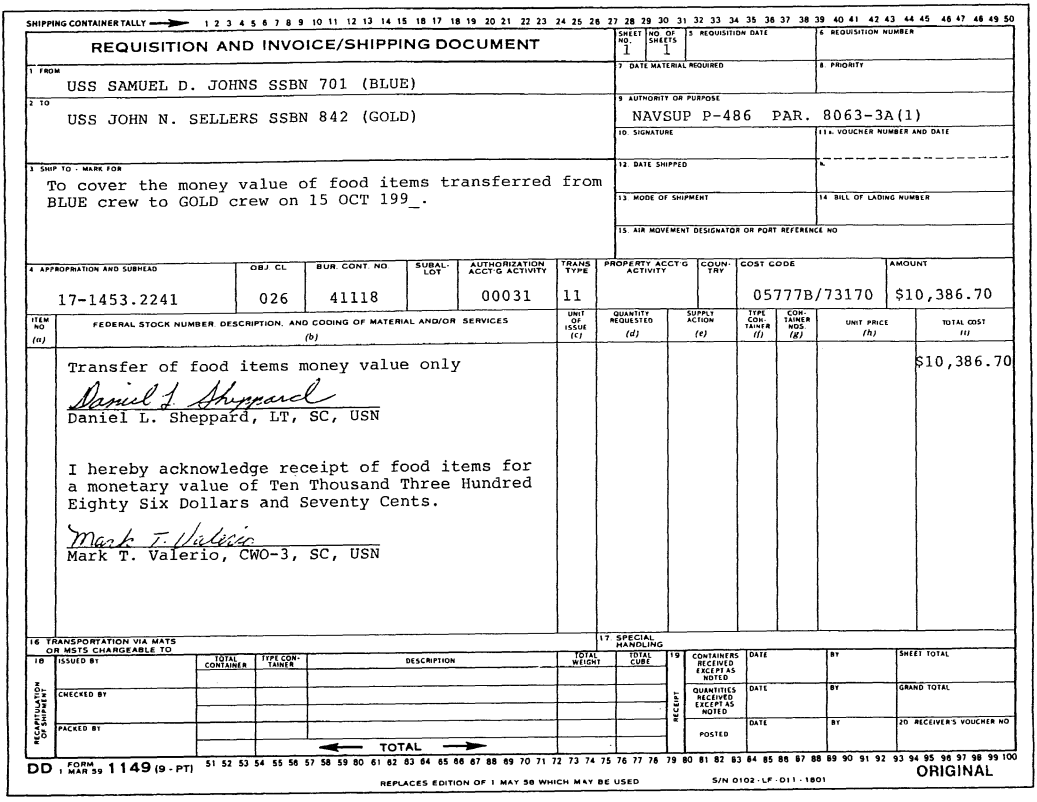
At ashore activities where daily deliveries of food items such as milk and bread are made directly to a food service officer by commercial sources, the following procedures apply:

- The food service officer's representative acknowledges receipt of the food items on the commercial delivery ticket.

- The food service officer's representative prepares a NAVSUP Form 1282 in triplicate by using the quantities receipted for on the commercial delivery ticket.

- A copy of the NAVSUP Form 1282 is retained for posting quantities received to the foodservice records.

- Remaining copies of the NAVSUP Form 1282 and commercial delivery ticket are forwarded to the supply officer.



SHIPPING CONTAINER TALLY → 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

SHEET NO. 1 | NO. OF SHEETS 1 | 5 REQUISITION DATE | 6 REQUISITION NUMBER

1 FROM: USS SAMUEL D. JOHNS SSBN 701 (BLUE)

7 DATE MATERIAL REQUIRED | 8 PRIORITY

2 TO: USS JOHN N. SELLERS SSBN 842 (GOLD)

9 AUTHORITY OR PURPOSE: NAVSUP P-486 PAR. 8063-3A(1)

10 SIGNATURE | 11a. VOUCHER NUMBER AND DATE

3 SHIP TO - MARK FOR: To cover the money value of food items transferred from BLUE crew to GOLD crew on 15 OCT 199_.

12 DATE SHIPPED | b.

13 MODE OF SHIPMENT | 14 BILL OF LADING NUMBER

15 AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO

4 APPROPRIATION AND SUBHEAD	OBJ CL	BUR CONT NO	SUBAL-LOT	AUTHORIZATION ACCT'G ACTIVITY	TRANS TYPE	PROPERTY ACCT'G ACTIVITY	COUN-TRY	COST CODE	AMOUNT
17-1453.2241	026	41118		00031	11			05777B/73170	$10,386.70

ITEM NO (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIAL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CONTAINER (f)	CONTAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
	Transfer of food items money value only							$10,386.70

Daniel L. Sheppard

Daniel L. Sheppard, LT, SC, USN

I hereby acknowledge receipt of food items for a monetary value of Ten Thousand Three Hundred Eighty Six Dollars and Seventy Cents.

Mark T. Valerio

Mark T. Valerio, CWO-3, SC, USN

16 TRANSPORTATION VIA MATS OR MSTS CHARGEABLE TO | 17 SPECIAL HANDLING

18	ISSUED BY	TOTAL CONTAINER	TYPE CONTAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
RECAPITULATION OF SHIPMENT	CHECKED BY					
	PACKED BY					
				← TOTAL →		

19 RECEIPT

CONTAINERS RECEIVED EXCEPT AS NOTED	DATE	BY	SHEET TOTAL
QUANTITIES RECEIVED EXCEPT AS NOTED	DATE	BY	GRAND TOTAL
POSTED	DATE	BY	20 RECEIVER'S VOUCHER NO

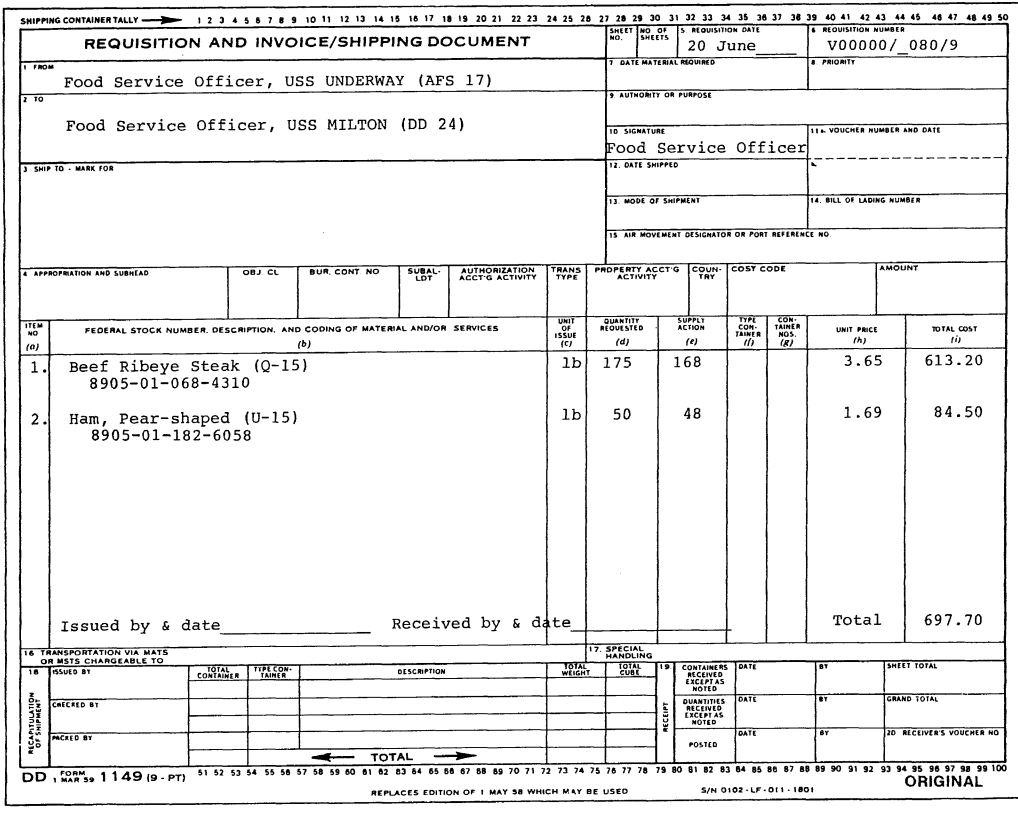
DD FORM 1 MAR 59 1149 (9 - PT) 51 52 53 54 55 56 57 58 59 60 61 62 83 84 85 86 87 88 89 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED

S/N 0102-LF-011-1801

ORIGINAL

Figure 4-2.—Requisition and Invoice/Shipping Document, DD Form 1149, used for transferring food items between submarine crews.



SHIPPING CONTAINER TALLY → 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

SHEET NO. | NO. OF SHEETS | 5 REQUISITION DATE: 20 June | 6 REQUISITION NUMBER: V00000/_080/9

1 FROM: Food Service Officer, USS UNDERWAY (AFS 17)

2 TO: Food Service Officer, USS MILTON (DD 24)

3 SHIP TO - MARK FOR

7 DATE MATERIAL REQUIRED | 8 PRIORITY

9 AUTHORITY OR PURPOSE

10 SIGNATURE: Food Service Officer | 11a. VOUCHER NUMBER AND DATE

12. DATE SHIPPED

13. MODE OF SHIPMENT | 14. BILL OF LADING NUMBER

15 AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO

4 APPROPRIATION AND SUBHEAD	OBJ. CL	BUR. CONT. NO	SUBAL-LDT	AUTHORIZATION ACCT'G ACTIVITY	TRANS TYPE	PROPERTY ACCT'G ACTIVITY	COUN-TRY	COST CODE	AMOUNT

ITEM NO (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIAL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CON-TAINER (f)	CON-TAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
1.	Beef Ribeye Steak (Q-15) 8905-01-068-4310	lb	175	168			3.65	613.20
2.	Ham, Pear-shaped (U-15) 8905-01-182-6058	lb	50	48			1.69	84.50
	Issued by & date _____ Received by & date _____						Total	697.70

16 TRANSPORTATION VIA MATS OR MSTS CHARGEABLE TO | 17. SPECIAL HANDLING

RECAPITULATION OF SHIPMENT

18 ISSUED BY	TOTAL CONTAINER	TYPE CON-TAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
CHECKED BY					
PACKED BY					
			← TOTAL →		

19 RECEIPT

	DATE	BY	
CONTAINERS RECEIVED EXCEPT AS NOTED			SHEET TOTAL
QUANTITIES RECEIVED EXCEPT AS NOTED	DATE	BY	GRAND TOTAL
POSTED	DATE	BY	20 RECEIVER'S VOUCHER NO

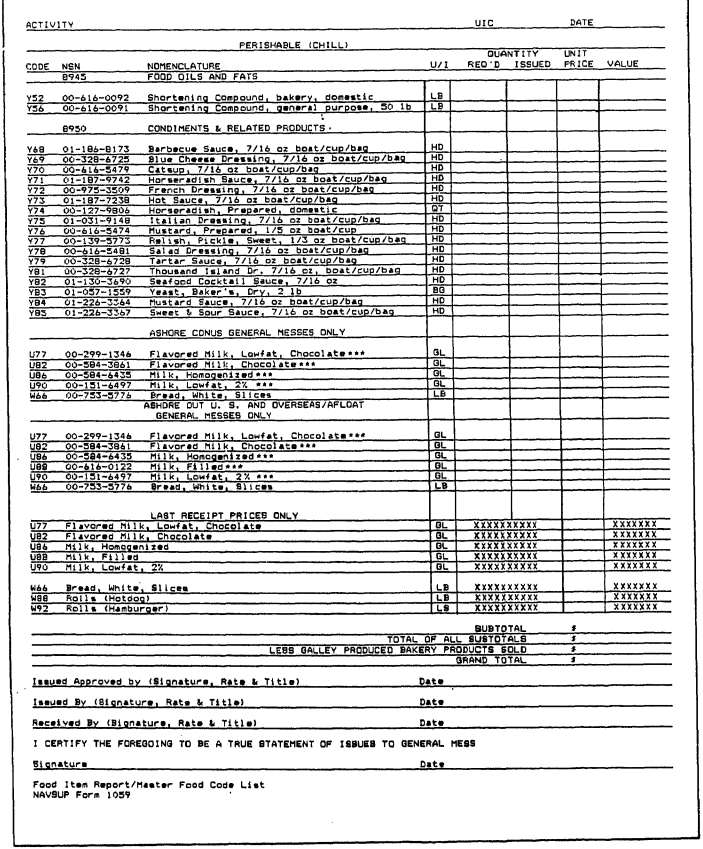
DD FORM 1 MAR 59 1149 (9 - PT) 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED

S/N 0102-LF-011-1801

ORIGINAL

Figure 4-3.—Requisition and Invoice/Shipping Document, DD Form 1149, used for transferring food items between general messes.



ACTIVITY UIC DATE

PERISHABLE (CHILL)

CODE	NSN	NOMENCLATURE	U/I	QUANTITY REQ'D	QUANTITY ISSUED	UNIT PRICE	VALUE
	8945	FOOD OILS AND FATS					
V52	00-616-0092	Shortening Compound, bakery, domestic	LB				
V56	00-616-0091	Shortening Compound, general purpose, 50 lb	LB				
	8950	CONDIMENTS & RELATED PRODUCTS					
V68	01-186-8173	Barbecue Sauce, 7/16 oz boat/cup/bag	HD				
V69	00-328-6725	Blue Cheese Dressing, 7/16 oz boat/cup/bag	HD				
V70	00-616-5479	Catsup, 7/16 oz boat/cup/bag	HD				
V71	01-187-9742	Horseradish Sauce, 7/16 oz boat/cup/bag	HD				
V72	00-975-3509	French Dressing, 7/16 oz boat/cup/bag	HD				
V73	01-187-7238	Hot Sauce, 7/16 oz boat/cup/bag	HD				
V74	00-127-9806	Horseradish, Prepared, domestic	QT				
V75	01-031-9148	Italian Dressing, 7/16 oz boat/cup/bag	HD				
V76	00-616-5474	Mustard, Prepared, 1/5 oz boat/cup	HD				
V77	00-139-5775	Relish, Pickle, Sweet, 1/3 oz boat/cup/bag	HD				
V78	00-616-5481	Salad Dressing, 7/16 oz boat/cup/bag	HD				
V79	00-328-6728	Tartar Sauce, 7/16 oz boat/cup/bag	HD				
V81	00-328-6727	Thousand Island Dr. 7/16 oz, boat/cup/bag	HD				
V82	01-130-3690	Seafood Cocktail Sauce, 7/16 oz	HD				
V83	01-057-1559	Yeast, Baker's, Dry, 2 lb	BG				
V84	01-226-3364	Mustard Sauce, 7/16 oz boat/cup/bag	HD				
V85	01-226-3367	Sweet & Sour Sauce, 7/16 oz boat/cup/bag	HD				
		ASHORE CONUS GENERAL MESSES ONLY					
U77	00-299-1346	Flavored Milk, Lowfat, Chocolate***	GL				
U82	00-584-3861	Flavored Milk, Chocolate***	GL				
U86	00-584-6435	Milk, Homogenized***	GL				
U90	00-151-6497	Milk, Lowfat, 2% ***	GL				
W66	00-753-5776	Bread, White, Slices	LB				
		ASHORE OUT U. S. AND OVERSEAS/AFLOAT GENERAL MESSES ONLY					
U77	00-299-1346	Flavored Milk, Lowfat, Chocolate***	GL				
U82	00-584-3861	Flavored Milk, Chocolate***	GL				
U86	00-584-6435	Milk, Homogenized***	GL				
U88	00-616-0122	Milk, Filled***	GL				
U90	00-151-6497	Milk, Lowfat, 2% ***	GL				
W66	00-753-5776	Bread, White, Slices	LB				
		LAST RECEIPT PRICES ONLY					
U77		Flavored Milk, Lowfat, Chocolate	GL	XXXXXXXXXX			XXXXXXX
U82		Flavored Milk, Chocolate	GL	XXXXXXXXXX			XXXXXXX
U86		Milk, Homogenized	GL	XXXXXXXXXX			XXXXXXX
U88		Milk, Filled	GL	XXXXXXXXXX			XXXXXXX
U90		Milk, Lowfat, 2%	GL	XXXXXXXXXX			XXXXXXX
W66		Bread, White, Slices	LB	XXXXXXXXXX			XXXXXXX
W88		Rolls (Hotdog)	LB	XXXXXXXXXX			XXXXXXX
W92		Rolls (Hamburger)	LB	XXXXXXXXXX			XXXXXXX

SUBTOTAL $

TOTAL OF ALL SUBTOTALS $

LESS GALLEY PRODUCED BAKERY PRODUCTS SOLD $

GRAND TOTAL $

Issued Approved by (Signature, Rate & Title) Date

Issued By (Signature, Rate & Title) Date

Received By (Signature, Rate & Title) Date

I CERTIFY THE FOREGOING TO BE A TRUE STATEMENT OF ISSUES TO GENERAL MESS

Signature Date

Food Item Report/Master Food Code List
NAVSUP Form 1059

Figure 4-4.—Food Item Report/Master Food Code List, NAVSUP Form 1059.

Figure 4-4 illustrates a page of a Food Item Report/Master Food Code List, NAVSUP Form 1059. An illustration of a NAVSUP Form 1282 will be shown later in this chapter.

DD FORM 1155.—This form is used when local purchases outside of normal supply sources are made. It is also used to order food items commonly available on indefinite contracts, such as milk, bread, ice cream, pastries, and occasionally fresh produce. Figure 4-5 illustrates a DD Form 1155.

Replenishment

The storeroom custodian keeps the leading MS informed regarding stock levels. This enables the leading MS to submit requisitions for items that

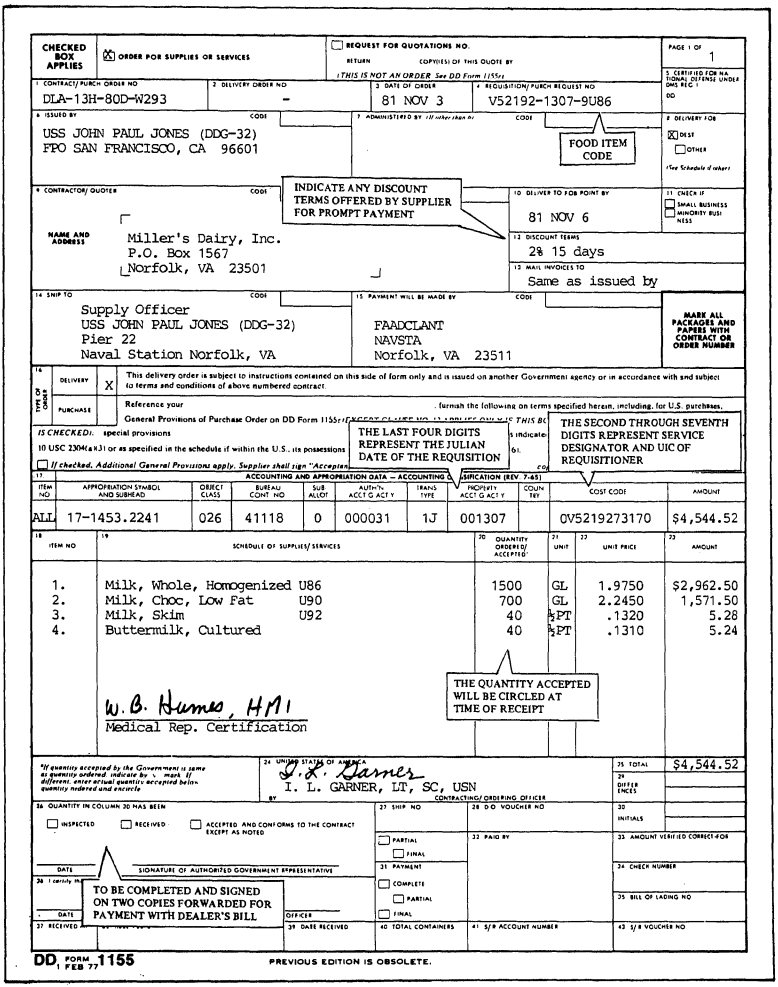

CHECKED BOX APPLIES
ORDER FOR SUPPLIES OR SERVICES
REQUEST FOR QUOTATIONS NO.
RETURN COPY(IES) OF THIS QUOTE BY
(THIS IS NOT AN ORDER See DD Form 1155)
PAGE 1 OF 1
1 CONTRACT/ PURCH ORDER NO
DLA-13H-80D-W293
2 DELIVERY ORDER NO
-
3 DATE OF ORDER
81 NOV 3
4 REQUISITION/PURCH REQUEST NO
V52192-1307-9U86
5 CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REG 1
DO
6 ISSUED BY
CODE
USS JOHN PAUL JONES (DDG-32)
FPO SAN FRANCISCO, CA 96601
7 ADMINISTERED BY (If other than 6)
CODE
FOOD ITEM CODE
8 DELIVERY FOR
DEST
OTHER
(See Schedule if other)
9 CONTRACTOR/ QUOTER
CODE
INDICATE ANY DISCOUNT TERMS OFFERED BY SUPPLIER FOR PROMPT PAYMENT
10 DELIVER TO F.O.B. POINT BY
81 NOV 6
11 CHECK IF
SMALL BUSINESS
MINORITY BUSINESS
NAME AND ADDRESS
Miller's Dairy, Inc.
P.O. Box 1567
Norfolk, VA 23501
12 DISCOUNT TERMS
2% 15 days
13 MAIL INVOICES TO
Same as issued by
14 SHIP TO
CODE
Supply Officer
USS JOHN PAUL JONES (DDG-32)
Pier 22
Naval Station Norfolk, VA
15 PAYMENT WILL BE MADE BY
CODE
FAADCLANT
NAVSTA
Norfolk, VA 23511
MARK ALL PACKAGES AND PAPERS WITH CONTRACT OR ORDER NUMBER
16 TYPE OF ORDER
DELIVERY
X
This delivery order is subject to instructions contained on this side of form only and is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.
PURCHASE
Reference your
. furnish the following on terms specified herein, including, for U.S. purchases,
General Provisions of Purchase Order on DD Form 1155
IF EXCEPT CLAUSE NO. (1) APPLIES ONLY IF THIS BOX
IS CHECKED: special provisions
10 USC 2304(a)(3) or as specified in the schedule if within the U.S., its possessions
If checked, Additional General Provisions apply. Supplier shall sign "Acceptance"
THE LAST FOUR DIGITS REPRESENT THE JULIAN DATE OF THE REQUISITION
THE SECOND THROUGH SEVENTH DIGITS REPRESENT SERVICE DESIGNATOR AND UIC OF REQUISITIONER
17 ACCOUNTING AND APPROPRIATION DATA — ACCOUNTING CLASSIFICATION (REV 7-65)
ITEM NO
APPROPRIATION SYMBOL AND SUBHEAD
OBJECT CLASS
BUREAU CONT NO
SUB ALLOT
AUTH ACCT G ACCT Y
TRANS TYPE
PROPERTY ACCT G ACCT Y
COUN TRY
COST CODE
AMOUNT
ALL
17-1453.2241
026
41118
0
000031
1J
001307
0V5219273170
$4,544.52
18 ITEM NO
19 SCHEDULE OF SUPPLIES/ SERVICES
20 QUANTITY ORDERED/ ACCEPTED*
21 UNIT
22 UNIT PRICE
23 AMOUNT
1. Milk, Whole, Homogenized U86 1500 GL 1.9750 $2,962.50
2. Milk, Choc, Low Fat U90 700 GL 2.2450 1,571.50
3. Milk, Skim U92 40 ½PT .1320 5.28
4. Buttermilk, Cultured 40 ½PT .1310 5.24
THE QUANTITY ACCEPTED WILL BE CIRCLED AT TIME OF RECEIPT
W. B. Humes, HM1
Medical Rep. Certification
*If quantity accepted by the Government is same as quantity ordered, indicate by ✓ mark. If different, enter actual quantity accepted below quantity ordered and encircle.
24 UNITED STATES OF AMERICA
I. L. GARNER, LT, SC, USN
CONTRACTING/ ORDERING OFFICER
25 TOTAL $4,544.52
26 DIFFERENCES
36 QUANTITY IN COLUMN 20 HAS BEEN
INSPECTED
RECEIVED
ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED
27 SHIP NO
PARTIAL
FINAL
28 D.O. VOUCHER NO
29 INITIALS
32 PAID BY
33 AMOUNT VERIFIED CORRECT FOR
31 PAYMENT
COMPLETE
PARTIAL
FINAL
34 CHECK NUMBER
35 BILL OF LADING NO
DATE
SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE
TO BE COMPLETED AND SIGNED ON TWO COPIES FORWARDED FOR PAYMENT WITH DEALER'S BILL
OFFICER
37 RECEIVED
38 DATE RECEIVED
40 TOTAL CONTAINERS
41 S/R ACCOUNT NUMBER
42 S/R VOUCHER NO
DD FORM 1 FEB 77 1155
PREVIOUS EDITION IS OBSOLETE.

Figure 4-5.—Order for Supplies or Services, DD Form 1155.

need replenishing. Different supply centers require various amounts of time between the requisition and the delivery dates. This time is known as order and shipping time (OST), often called lead time. Be sure to familiarize yourself with the requirement in your working area for replenishing both at sea and in port. Also allow ample delivery time to avoid running short of food.

STOCK LEVEL.—The stock level or stockage objective for food items is the sum of the operating level plus the safety level in terms of days of supply. See figure 4-6 for stockage objectives.

LEAD TIME.—Lead time (or OST) represents the quantity of food items that will be consumed during the interval between submission of a requisition and receipt of material.

Procurement Records and Files

Records and files designed to control procurement documents and to provide a quick means of identifying outstanding requisitions and purchase orders must be established. These records and files are discussed below.

REQUISITION LOG.—A Requisition Log, NAVSUP Form 1336, is mandatory for all ashore and afloat activities unless maintained by automated data processing (ADP) records. This form should be prepared so that all requisitions and purchase orders are entered in their order of preparation. This record should contain the same information as indicated in figure 4-7.

ROUGH REQUISITION.—A rough requisition, NAVSUP Form 1059, is used to determine the quantities of food items needed.

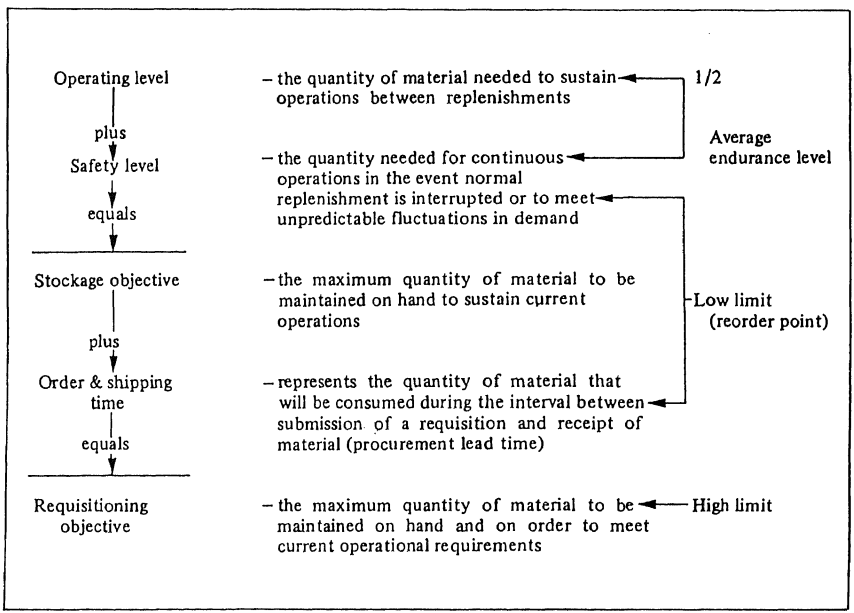
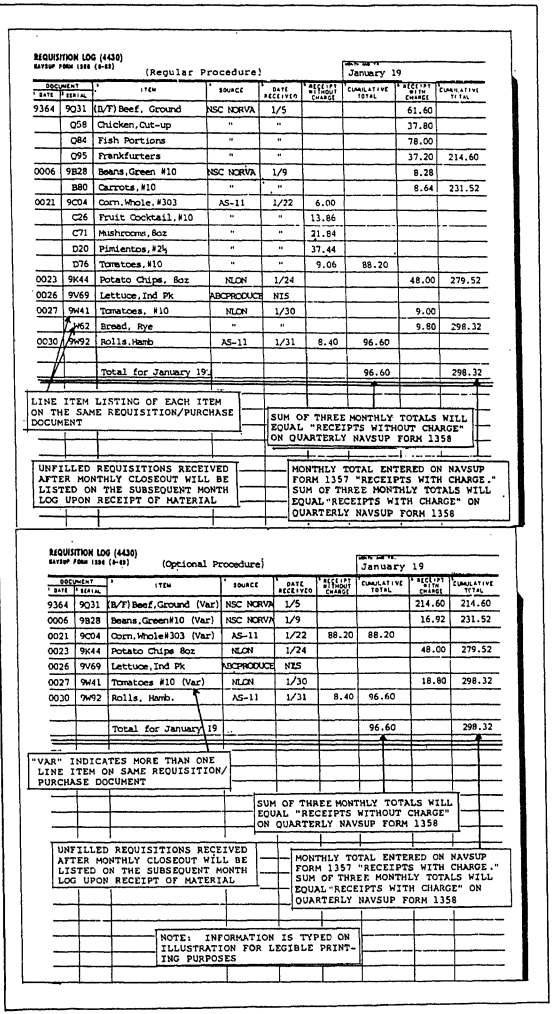

Operating level
plus
Safety level
equals
Stockage objective
plus
Order & shipping time
equals
Requisitioning objective
– the quantity of material needed to sustain operations between replenishments
– the quantity needed for continuous operations in the event normal replenishment is interrupted or to meet unpredictable fluctuations in demand
– the maximum quantity of material to be maintained on hand to sustain current operations
– represents the quantity of material that will be consumed during the interval between submission of a requisition and receipt of material (procurement lead time)
– the maximum quantity of material to be maintained on hand and on order to meet current operational requirements
1/2
Average endurance level
Low limit (reorder point)
High limit

Figure 4-6.—Stockage objective for food items.



REQUISITION LOG (4430)
NAVSUP FORM 1336 (9-83)

(Regular Procedure)

January 19

DOCUMENT DATE	DOCUMENT SERIAL	ITEM	SOURCE	DATE RECEIVED	RECEIPT WITHOUT CHARGE	CUMULATIVE TOTAL	RECEIPTS WITH CHARGE	CUMULATIVE TOTAL
9364	9Q31	(B/F) Beef, Ground	NSC NORVA	1/5			61.60	
	Q58	Chicken, Cut-up	"	"			37.80	
	Q84	Fish Portions	"	"			78.00	
	Q95	Frankfurters	"	"			37.20	214.60
0006	9B28	Beans, Green #10	NSC NORVA	1/9			8.28	
	B80	Carrots, #10	"	"			8.64	231.52
0021	9C04	Corn, Whole, #303	AS-11	1/22	6.00			
	C26	Fruit Cocktail, #10	"	"	13.86			
	C71	Mushrooms, 8oz	"	"	21.84			
	D20	Pimientos, #2½	"	"	37.44			
	D76	Tomatoes, #10	"	"	9.06	88.20		
0023	9K44	Potato Chips, 8oz	NLON	1/24			48.00	279.52
0026	9V69	Lettuce, Ind Pk	ABCPRODUCE	NIS				
0027	9W41	Tomatoes, #10	NLON	1/30			9.00	
	W62	Bread, Rye	"	"			9.80	298.32
0030	9W92	Rolls, Hamb	AS-11	1/31	8.40	96.60		
		Total for January 19				96.60		298.32

LINE ITEM LISTING OF EACH ITEM ON THE SAME REQUISITION/PURCHASE DOCUMENT

SUM OF THREE MONTHLY TOTALS WILL EQUAL "RECEIPTS WITHOUT CHARGE" ON QUARTERLY NAVSUP FORM 1358

UNFILLED REQUISITIONS RECEIVED AFTER MONTHLY CLOSEOUT WILL BE LISTED ON THE SUBSEQUENT MONTH LOG UPON RECEIPT OF MATERIAL

MONTHLY TOTAL ENTERED ON NAVSUP FORM 1357 "RECEIPTS WITH CHARGE." SUM OF THREE MONTHLY TOTALS WILL EQUAL "RECEIPTS WITH CHARGE" ON QUARTERLY NAVSUP FORM 1358

REQUISITION LOG (4430)
NAVSUP FORM 1336 (9-83)

(Optional Procedure)

January 19

DOCUMENT DATE	DOCUMENT SERIAL	ITEM	SOURCE	DATE RECEIVED	RECEIPT WITHOUT CHARGE	CUMULATIVE TOTAL	RECEIPTS WITH CHARGE	CUMULATIVE TOTAL
9364	9Q31	(B/F) Beef, Ground (Var)	NSC NORVA	1/5			214.60	214.60
0006	9B28	Beans, Green #10 (Var)	NSC NORVA	1/9			16.92	231.52
0021	9C04	Corn, Whole #303 (Var)	AS-11	1/22	88.20	88.20		
0023	9K44	Potato Chips 8oz	NLON	1/24			48.00	279.52
0026	9V69	Lettuce, Ind Pk	ABCPRODUCE	NIS				
0027	9W41	Tomatoes #10 (Var)	NLON	1/30			18.80	298.32
0030	9W92	Rolls, Hamb.	AS-11	1/31	8.40	96.60		
		Total for January 19				96.60		298.32

"VAR" INDICATES MORE THAN ONE LINE ITEM ON SAME REQUISITION/ PURCHASE DOCUMENT

SUM OF THREE MONTHLY TOTALS WILL EQUAL "RECEIPTS WITHOUT CHARGE" ON QUARTERLY NAVSUP FORM 1358

UNFILLED REQUISITIONS RECEIVED AFTER MONTHLY CLOSEOUT WILL BE LISTED ON THE SUBSEQUENT MONTH LOG UPON RECEIPT OF MATERIAL

MONTHLY TOTAL ENTERED ON NAVSUP FORM 1357 "RECEIPTS WITH CHARGE." SUM OF THREE MONTHLY TOTALS WILL EQUAL "RECEIPTS WITH CHARGE" ON QUARTERLY NAVSUP FORM 1358

NOTE: INFORMATION IS TYPED ON ILLUSTRATION FOR LEGIBLE PRINTING PURPOSES

Figure 4-7.—Requisition Log, NAVSUP Form 1336.

ACTIVITY USS NEVER SAIL DO 902 UIC DATE SAIL 19XX

SEMI-PERISHABLE

CODE	NSN	NOMENCLATURE	U/I	QUANTITY REQ'D	QUANTITY ISSUED	UNIT PRICE	VALUE
	8915	FRUITS & VEGETABLES (CONTINUED)					
C51	01-251-3227	Juice, Orange, 5 1/4 - 6 oz, TP 2	CN				
C52	00-241-2800	Juice, Orange, #3 cyl	CN				
C53	01-254-1673	Juice, Orange, Instant, # 2 1/2, TP 2	CN				
C54	00-530-3414	Juice, Orange, Instant, # 2 1/2	CN				
C56	00-205-0938	Juice, Pineapple, 5 1/2 - 6 oz	CN				
C58	00-634-2439	Juice, Pineapple, # 3 cyl	CN				
C59	01-250-4378	Juice, Pineapple, #3 cyl, TP 2	CN				
C60	01-250-6380	Juice, Tomato, Concentrated, 36 oz, TP 2	CN				
C61	00-616-0204	Juice, Tomato, Concentrated, 36 oz	CN				
C63	00-223-5960	Juice, Tomato, Single Strength, 5 1/4-6 oz	CN				
C64	01-250-6381	Juice, Tomato, Single Strength, #3 cyl, TP 2	CN				
C65	00-255-0523	Juice, Tomato, Single Strength, #3 cyl	CN				
C67	00-256-7993	Juice, Vegetable, 5 1/2 - 8 oz	CN				
C69	00-130-9251	Juice, Vegetable, # 3 cyl	CN				
C70	01-244-2072	Juice, Vegetable, Spicy Hot 5 1/2 to 8 oz	CN				
C71	00-551-0340	Mushrooms, 8Z	CN				
C72	01-250-6377	Mushrooms, Jumbo Size, TP 2	CN				
C73	00-935-6429	Mushrooms, Jumbo Size	CN				
C75	00-299-1351	Nectar, Apricot, 5 1/2 - 6 oz	CN				
C76	01-235-3548	Oranges, Mandarin, 11 oz	CN				
C77	00-205-0933	Okra, #303	CN				
C79	00-435-2711	Onions, Whole, #303	CN				
C80	00-442-2717	Onions, Whole, #10	CN				
C81	00-151-6568	Onions, Dehy, Comp., #2 1/2	CN				
C82	01-240-4989	Onions, Dehy, Comp., #2 1/2, TP 2	CN				
C83	01-250-8994	Onion Ring Mix, #10, TP 2	CN				
C84	01-127-4004	Onion Ring Mix, #10	CN				
C85	00-975-0830	Parsley, Dehydrated, 1 1/2 oz	CN				
C87	00-584-2795	Peaches, Halves, #2 1/2	CN				
C89	00-584-2794	Peaches, Halves, #10	CN				
C91	00-584-2796	Peaches, Quarters/Slices, #2 1/2	CN				
C92	00-577-4203	Peaches, Quarters/Slices, #10	CN				
C94	01-250-7564	Peaches, Quarters/Slices, #10, TP 2	CN				
C96	01-250-6366	Pears, Halves, #10, TP 2	CN				
C97	00-616-0224	Pears, Halves, #2 1/2	CN				
C98	00-245-2294	Pears, Quarters/Slices, #2 1/2	CN				
C99	00-616-0223	Pears, Halves, #10	CN				
D01	00-245-2295	Pears, Quarters/Slices, #10	CN				
D05	00-007-5309	Peas, Blackeye, #10	CN				
D06	00-127-9265	Peas, #303	CN				
D07	01-250-6371	Peas, #10, TP 2	CN				
D08	00-127-9282	Peas, #10	CN				
D09	00-401-8480	Peas, Dehy., Comp., #2 1/2	CN				
D10	00-127-7795	Peas, Dry, 1 lb	LB				
D11	01-038-2147	Peas, Chick, (Garbanzo) 15-16 oz	CN				
D12	01-254-1672	Peas, Dehy., Comp., #2 1/2, TP 2	CN				
D14	00-227-1387	Peppers, Green, Dehy, #2 1/2	CN				
D15	01-250-6372	Peppers, Green, Dehy, # 2 1/2, TP 2	CN				
D18	00-292-9266	Pimientos, 7 oz	CN				
D20	00-935-6371	Pimientos, #2 1/2	CN				
D24	00-403-8534	Pineapple, chunks, #2	CN				
D25	01-251-7330	Pineapple, chunks, #10, TP 2	CN				
D26	00-170-5127	Pineapple, chunks, #10	CN				
D28	00-410-8421	Pineapple, crushed, #2	CN				
D30	00-127-7262	Pineapple, crushed, #10	CN				
D31	01-250-6367	Pineapple, crushed, #10, TP 2	CN				
D32	00-170-5150	Pineapple, slices, #2	CN				
D34	00-170-5148	Pineapple, slices, #10	CN				
D38	00-191-4709	Plums, purple, #10	CN				
D39	00-223-5894	Plums, purple, #2 1/2	CN				
D40	00-634-2441	Potatoes, Sweet, #2 vac	CN				
D41	01-250-6372	Potatoes, Sweet, #3 vac, TP 2	CN				
D43	01-251-3225	Potatoes, White, Instant, #10, TP 2	CN				
D44	00-127-8892	Potatoes, Sweet, #2 1/2	CN				
D45	01-067-7866	Potato Mix, 1 1/2 lb	BG				
D46	00-543-7673	Potatoes, White, #303, whole	CN				
D47	00-161-8912	Potatoes, White, Dehy, diced, uncooked #10	CN				
D48	00-127-7677	Potatoes, White, #10, whole	CN				
D49	01-144-1931	Potatoes, shredded (hashbrown), dehy #10	CN				
D50	01-250-6369	Potatoes, White, Slices Dehy, 5 lb, TP 2	BG				
D51	00-139-7426	Potatoes, White, Slices, Dehy, 5 lb	BG	1000			
D52	00-782-3330	Potatoes, White, Instant, 15 oz	PG				
D53	00-135-5903	Potatoes, White, #2, domestic	CN				
D54	00-164-6876	Potatoes, White, Instant, #10 export	CN				
D55	01-251-3226	Potato Mix, Dehy, #10, TP 2	CN				
D56	01-004-8678	Potato Mix, Dehydrated, #10	CN				
D57	00-582-4054	Prunes, Dried, 1 lb	LB				
D58	00-164-0450	Prunes, #10	CN				
					SUBTOTAL	¢	

Food Item Report/Master Food Code List
NAVSUP Form 1059

Enclosure (3)

3

Figure 4-8.—Rough requisition.

Figure 4-8 gives an example of a rough requisition.

SMOOTH REQUISITION.—Figure 4-9 illustrates a smooth requisition prepared from the rough requisition shown in figure 4-8.

PRIVATE MESS

The discussion now focuses on procurement of food items used in the private messes afloat, including the determination of requirements and the preparation of requisitions and purchase

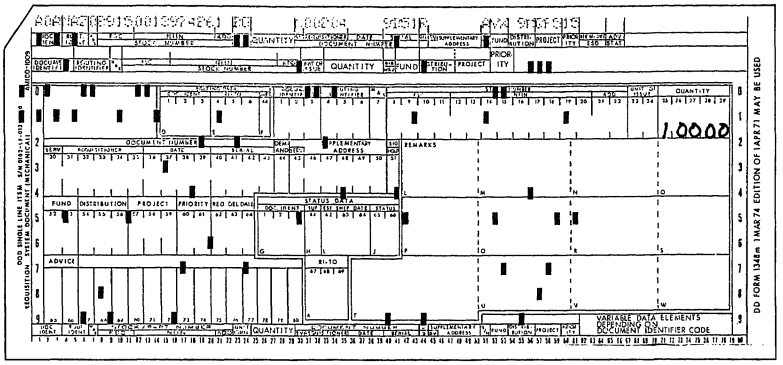


Figure 4-9.—Smooth requisition.

orders. You may be assigned to one of these areas, so it is important for you to know how these tasks are performed and why they are important.

Methods of Procurement

Private messes may procure food from any available source. The choice of source is based on price, quality, and availability of the desired items. Available sources are the general mess, commissary store, and either wholesale or retail commercial suppliers. Actually, all procurement is made by purchase. Even items drawn from the general mess are paid for at the end of the month by cash from private mess funds. Thus, they are considered to be purchases.

Estimating Requirements

Estimating requirements ashore requires less advance planning than it does afloat because you are always near a source of supply. Much more planning is required for a private mess afloat since the ship may operate for weeks away from any supply source except its own storeroom.

GENERAL MESS.—The supply officer is responsible for loading a sufficient quantity and range of food items to take care of general mess requirements. Not only is past usage considered when estimating requirements, but also anticipated sales to private messes. However, any unusual requirements should be reported to the supply officer so that the orders can be adjusted accordingly.

A list of all items regularly stocked in the general mess should be maintained to show which items are normally available and which items require advanced planning to order.

COMMERCIAL SOURCES.—Requirements for the items to be purchased from commercial suppliers or commissary stores must be carefully estimated and must be based on the type of operation, storage facilities available, and the cost. Orders for perishable items should be limited to those that can be consumed during their normal storage life. The type and quantity of items that can be purchased may also be limited by the amount of money available to the treasurer.

OPERATIONS.—Such factors as the length of the cruise and climate to be encountered will have a definite influence on the type and quantity of items required. Fresh foods will only keep so long, and then you must rely on dry and frozen items. The climate will determine the type and quantity of food served. Cold weather requires more substantial meals and larger portions. When the weather is hot, you will want to serve lighter meals and smaller portions.

USAGE DATA.—Any records concerning the mess will provide data that are useful for estimating needs. For example, old menus and records of purchases will indicate which foods are preferred and their rate of use.

MENUS.—While you probably will not be preparing menus, they are helpful in estimating requirements. They must be relied on if special meals are planned that include items not normally used. The Armed Forces Recipe Service should be used to accurately estimate the amount of each

the cruise. By using the formula conversion method described in chapter 8, you can determine the proportional amounts needed for each menu, and thus estimate the amount of each item needed by the mess for the cruise.

Storage Facilities

The amount of storage space you have available must be considered when you are estimating requirements. When lack of refrigerated storage space limits the amount of perishable items you can stock, you will have to depend more on semiperishable foods.

In addition to refrigeration equipment discussed in chapter 6, most wardrooms have storeroom space for perishable and semiperishable foods. On large ships, these may be separate storerooms. On other ships, there is usually a space in the general mess storerooms that is designated for use by the private messes.

General Mess

The general mess is the major supply source afloat. Refer to *Foodservice Management*, NAVSUP P-486, volume I, for the rules pertaining to the sale of food items to Navy and Marine Corps officer and enlisted clubs and messes ashore. Items purchased from the general mess are usually less expensive, are of uniform quality, and can be used with a minimum of waste.

PURCHASE PROCEDURES.—The forms used to purchase food from the general mess are the NAVSUP Form 1282 (see fig. 4-10) and the Requisition and Invoice/Shipping Document, DD Form 1149. The DD Form 1149 is used for items not listed in FSC group 89 (subsistence) as authorized for Navy use but procured for immediate sale to flag and cabin messes.

Generally the steps in requesting food items are as follows:

1. Prepare the issue request NAVSUP Form 1282 in triplicate.
2. Present the form to the mess treasurer, or the authorized representative. If a person other the food service officer in writing. All requests for food items must be serialized and a logbook maintained for this purpose. The treasurer will sign the form indicating approval.

3. Take the signed form to the food service officer. The food service officer signs indicating approval of the sale.

4. The approved form is then presented to the storeroom custodian. The storeroom custodian will issue the requested items, indicate the quantity issued on the form, and sign the ISSUED BY block. The mess representative will sign in the RECEIVED BY block.

5. The storeroom custodian gives the duplicate copy of the form to the mess representative.

The original and the triplicate copy are retained for posting to the foodservice records. After the posting process, the original copy goes to the food service officer to be held under lock and key until preparation of the mess billing document. It is also used in preparing the monthly cash sales report. The triplicate is retained by the foodservice recordskeeper.

BAKERY PRODUCTS.—Many private messes purchase most of their bakery products. Usually, purchases afloat are from the general mess. NAVFSSO publishes a price list of galley-produced bakery products. The list includes the item, the unit of issue, and the price per unit. The cost of galley-produced bakery products that do not appear in the price list must be established at the local level. The NAVSUP P-486, chapter 6, gives instructions on how to establish these prices.

Galley-produced bakery products are shipboard or locally prepared. These products do not include bakery products that are procured from a commercial source by the general mess and later sold to a private mess. These products are sold to private messes at last receipt prices.

To purchase galley-produced bakery products, the private mess prepares a separate NAVSUP Form 1282 in triplicate, using the same approval and issue procedures as all other purchases from

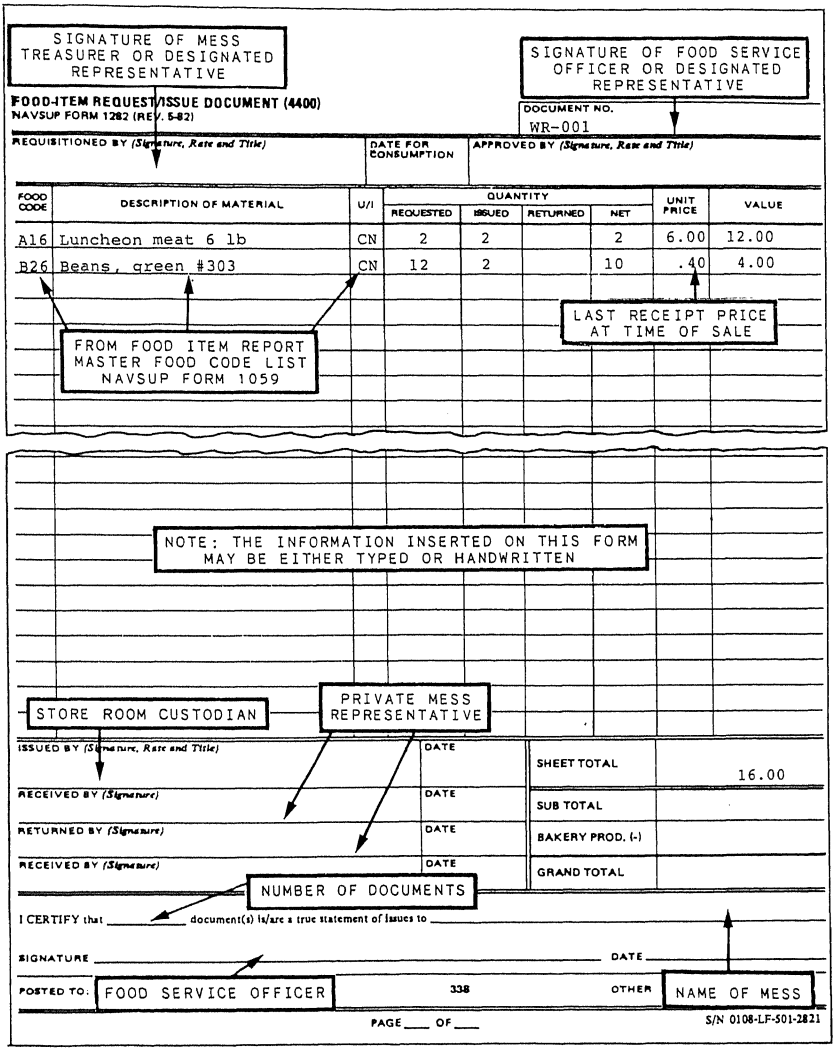


Figure 4-10.—NAVSUP Form 1282 used to purchase food items from a general mess.

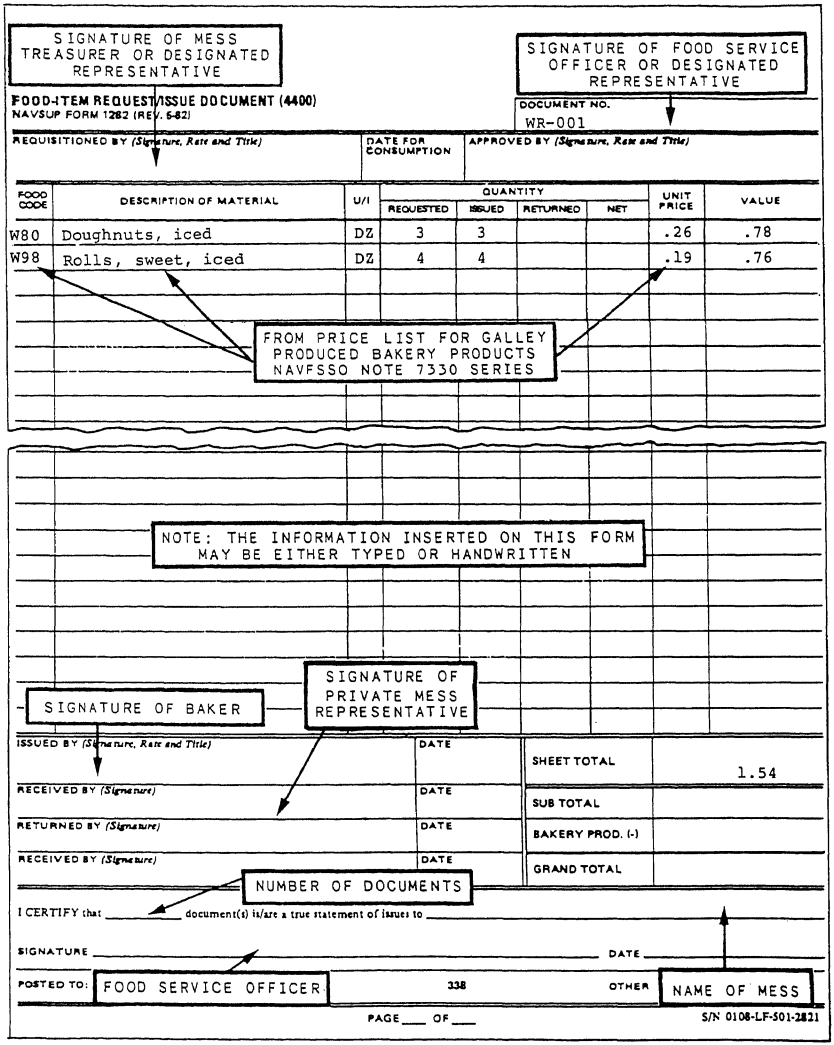


Figure 4-11.—NAVSUP Form 1282 used by a private mess to purchase galley-produced bakery products from a general mess.

galley-produced bakery products.

Commercial Sources

Private messes usually rely on commercial suppliers for items that are not carried in the general mess.

Unlike food purchased from the general mess, items purchased locally require inspection by the medical department to ensure that they are fit for human consumption. Purchases within CONUS generally do not present a problem since food production is monitored by federal, state, and local health authorities.

PURCHASE ORDERS.—A Purchase Order, NAVCOMPT Form 2213, must be issued for all purchases made from commercial sources except small purchases made from petty cash.

The NAVCOMPT Form 2213 consists of an original and four multicolored copies that must be prenumbered by the mess treasurer. A completed purchase order is shown in figure 4-12.

CASH PURCHASE.—It is not necessary to prepare a purchase order for every small purchase action. When small amounts of items are needed, it is usually more convenient to handle them as

PURCHASE ORDER
NAVCOMPT FORM 2213 (5 PT) (REV. 3-72)
S/N 0104-LF-706-5300

ACTIVITY NO.	DATE	PURCHASE ORDER NO.
		4379

FROM:
USS John Doe (DD 91)
FPO Miami, FL
32501-0001

TO:
Restaurant Supply Co.
1900 Linen Ave.
Anywhere, FL
32501-0002

DELIVER TO:
USS John Doe
Pier 4
Anywhere, FL
32501-0002

GENTLEMEN: Being governed by instructions hereon, please enter our order for the following:

QUANTITY	DESCRIPTION		UNIT	UNIT PRICE	AMOUNT
2	Assorted cereal		CS	15.00	30.00

DATE REQUIRED	DISCOUNT TERMS	VIA	SIGNATURE OF AUTHORIZED REPRESENTATIVE
July 30, 199	30 days	Your truck	R.T. Valerio CWO2

BILLING INSTRUCTIONS

A. Separate invoices must be rendered for each order.
B. Do not pack invoice with merchandise; mail under separate cover.
C. Transportation charge, when applicable, must be added to invoice.
D. Full name and address of this activity and Purchase Order No. must appear on all documents accompanying or have reference to delivery of this order.
E. SEE REVERSE OF THIS SHEET FOR OTHER INSTRUCTIONS.

NOTE: NONCOMPLIANCE WITH THESE INSTRUCTIONS WILL RESULT IN RETURN OF INVOICE AND DELAY PAYMENT.

NOTE: NOTIFY US IMMEDIATELY IF UNABLE TO COMPLETE ORDER BY REQUIRED DATE.

PART 1 VENDOR COPY

Figure 4-12.—NAVCOMPT Form 2213.

cash purchases. Examples of cash purchases are items purchased at supermarkets or commissary stores and telephone orders for same day delivery. In such cases payment is made at time of delivery. Officer messes usually establish a petty cash fund for this purpose. When the volume of cash purchases is relatively small, the treasurer may advance funds for each purchase rather than establish a petty cash fund. In either case, the person making the purchase must obtain a sales slip or receipt. In addition, a Petty Cash Voucher, NAVCOMPT Form 743, must be prepared and signed for all petty cash purchases as shown in figure 4-13.

INSPECTION

Regardless of the source from which food items are obtained and regardless of any prior inspection, it may be your responsibility to inspect them as they arrive to determine that the specified quantities have been received.

A designated representative of the medical department should perform a fitness-for-human-consumption inspection upon receipt of food items that have been purchased on the local market or under contracts that require inspection at destination. The receipt document showing that this inspection has been done must be signed by the medical representative. Items about which there is any doubt as to fitness must not be accepted. Receipts from Navy sources and other government departments have already been inspected. However, dockside inspections must be conducted by the food service officer or a designated representative and the medical officer or medical department representative.

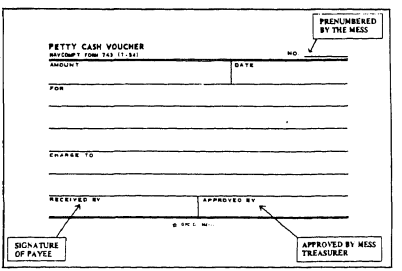


Figure 4-13.—Petty Cash Voucher, NAVCOMPT Form 743.

SEAFOOD PRODUCTS

Seafood must be inspected carefully because it will deteriorate faster than any other type of food. Most fish used by the Navy is purchased through supply centers, but you must still inspect it carefully just before it is prepared to be sure it hasn't deteriorated. Do not use fish that has been thawed and frozen again. Refrozen fish will have soft, flabby flesh, a sour odor, and may be off-color. The paper in which it is wrapped will be quite moist, slimy, and may even be discolored. The bottom of the fish container will contain ice that has formed in the refreezing of the product.

FRESH FRUIT

Inspections of fresh fruit are based upon standards of the United States Department of Agriculture. Due allowances, however, are made for differences in these grades or standards, but minimum requirements are defined for the various grades.

Generally speaking, the choice of any particular fruit is influenced by appearance and quality. However, you should consider the following factors in inspecting fruit: appearance (absence of blemishes), size, and taste. Appearance is an indication of quality, but it must not be used as the sole standard in inspecting. Blemishes indicate poor quality or the beginning of decay. The larger the fruit, the more woody and coarse it usually is. Taste, however, is the best indicator of quality. Occasionally, fruit may have surface blemishes and the quality still may be high. Only by tasting can this quality be determined.

The characteristics that indicate good quality in fruit and the standards for inspecting fruit are listed below.

APPLES—The best apples are firm and have good color (bright and unspotted) and a pleasant flavor. Immature apples have a poor color, lack flavor, and shrivel after storage. Tart apples are best for most purposes. Soft, mealy, or overripe apples should be avoided.

BANANAS—The color and condition of the peel are good indications of the use that should be made of bananas. When the skin is all yellow, the banana is firm enough and ripe enough to be eaten. If the peel is yellow but flecked with brown, the banana is fully ripe and should be used immediately. Fruit with a moldy skin that has turned black is of poor quality, although some bananas with a dark skin are very ripe but may still be good to eat.

a stem at the blossom end. If the netting covers
e cantaloupe thickly and stands out like a
hipcord, the melon is generally good. An
pparent softness at the blossom end is not a sure
dication of maturity, as repeated pressure from
andling will produce this condition. A fully ripe
ntaloupe will have a delicate aroma, while an
udible rattling of the seeds in a melon, when
aken, is another sign of maturity. The skin
eneath the netting usually has a yellow tinge. Too
eep a yellow indicates overripeness.

CHERRIES—High quality is denoted by
umpness with a bright appearance and good
olor.

GRAPEFRUIT—Fine juicy grapefruit are
ell rounded in shape and heavy for their size.
hey are firm, but springy to the touch; not soft,
ilted, or flabby. When grapefruit have a coarse
in or are puffy and spongy it indicates lack of
ice and taste.

GRAPES—Color is a good guide to ripeness.
he darker varieties should be free of a green
nge, while the white grapes should have a
ecided amber color. The fruit should be plump
nd each grape should be firmly fastened to the
em. A wet condition, or the presence of mold,
dicates decay.

HONEYDEW MELONS—Prime quality
oneydew melons have a thick green-colored,
veet, fine-flavored flesh with a distinct pleasant
roma. The rind has a light yellowish color and
elds slightly to pressure. Decay is generally in-
icated by mold or dark, sunken, watery areas.

LEMONS—The best lemons have a greenish
ellow color with a smooth fine-textured skin and
e heavy for their size. Mold or soft spots at the
nd indicate decay. If too springy, they may be
ecayed in the center.

NECTARINES—Nectarines look and taste
ke small peaches except that they do not have
each fuzz. The flesh may be red, white, or yellow
color and should be plump and firm.

ORANGES—The skins of good oranges
ould be yellowish orange, smooth, and fine tex-
ured. Avoid those that have badly creased skins
r a puffy spongy condition and are light in weight
or their size. When you are inspecting for quality,
e sure that the crate does not contain decayed
uit.

PEACHES—Quality in peaches is indicated
y the general appearance and firmness of the
filled out. The color on the underside should be creamy white or yellow, blushed with red. Overripeness is indicated by a deeper reddish brown color and softness of the fruit.

PEARS—Good quality pears are firm and shiny. Pears are packed and shipped green because they develop a fine flavor and smoother texture when ripened off the tree. They should be fully ripe if they are to be served in the raw state. If they are hard and unyielding to the touch at the time of receipt, allow them to stand at ordinary room temperature until the flesh responds readily to a gentle pressure of the hand. They are then in prime condition for eating.

PINEAPPLES—Fully ripe pineapples are slightly soft to the touch, golden yellow in color, and have a "piney" aroma. Pineapples that are too green may not ripen well. Overmaturity is shown by slight decay at the base or on the sides by dark, soft, watery spots.

PLUMS—Good plums should be full colored and soft enough to yield to slight pressure. Some varieties are fully ripe when the color is yellowish green; others are fully ripe when the color is purplish blue or black. If hard, poor in color and flavor, the fruit is immature. Overripe fruit is soft and usually leaky.

STRAWBERRIES—The quality of strawberries is indicated by the general appearance. They should be firm, plump, and bright red in color. Overripe berries are leaky, dull in color, and should not be used. Mold at surface indicates decay.

TANGERINES—Tangerines are small, yellowish red oranges with easily removable skins and loosely adhering sections. Quality is based mainly on their weight for their size and a deep yellow or orange-colored skin.

WATERMELONS—A fully ripe watermelon has a thin outer skin that peels easily when scraped with the fingernail. The fully ripened watermelon is green in color with the exception of the underside which changes from a white to a yellow tinge as the watermelon matures. The safest way to determine the quality of watermelon is by "plugging." (Plugging is the removal of a small triangular section of the rind in order to see the meat inside.)

CANNED PRODUCTS

In the event you are assigned to the inspection of canned products, such as meats, fish,

poultry, vegetables, fruits, and juices, you should make an inspection of the following:

CAN SIZE—Make sure cans are the size requisitioned.

CAN LABELS—Check the information stamped on the end of each can; be sure that contents and date of pack are indicated.

CAN EXTERIOR—Examine the exterior of the can for general appearance, dents, swelling, rust, and pinholes. Dents, unless so severe as to cause leakage, do not indicate that the contents are in an unsatisfactory condition. Rust does not injure the food unless it penetrates the can. Pinholes are found only by careful inspections.

CAN INTERIOR—Remove the contents and check the inside of a sample can very carefully. It may be necessary to rinse the can thoroughly and then refill with water to detect very small pinholes.

CONTENTS OF CAN—Odor and taste usually indicate the condition of food. A fading of color, a loss of flavor, and a softening of the contents of the can are due to chemical action and natural aging processes. Discoloration is another defect caused by a chemical action. It is usually found in products containing sulphur compounds such as corn, peas, and meat products.

UNSATISFACTORY CANS

Except for coffee and molasses, which are discussed later, foods contained in the following types of cans are unsatisfactory and should be surveyed. Canned food that is abnormal in appearance or odor should never be eaten or even tasted.

Pinholes Cans

These cans have tiny holes that have been caused by the action of the acid in the food.

Swells

These are also called "swellers." Both ends of this type of can bulge out and remain that way. This condition is caused by the chemical action of bacteria (microorganisms) on the food which results in the formation of a gas (hydrogen sulphide). This gas cannot escape and the pressure from the gas causes the ends of the can to bulge out.

Springers

The ends of this type of can are also bulged out; however, the ends will yield to pressure of the fingers or thumb. When the pressure is relieved, the ends bulge out again. This condition may be caused by the can being overfilled or by the chemical action of bacteria on the food which results in the formation of a gas which causes the swelling condition.

Flippers

If the cans of food have been in storage for a long period of time and the cans show signs of deterioration, they should be checked by the following method. Bring the end of the can down sharply on a flat surface. If one end is forced into a convex shape when the other end of the can is brought down sharply on a flat surface, it indicates a loss of vacuum in the can from the formation of gas by bacteria or by chemical action on the metal of the can. The contents should not be used. If you are in doubt as to the quality of the contents, consult the medical representative.

Exceptions to the above are coffee and molasses. Care must be taken not to reject cans of coffee and molasses that show swell or springer characteristics, as in these cases it does not indicate that the contents are spoiled.

If in doubt as to the quality of the products, seek assistance from the medical department via your chain of command.

FRESH VEGETABLES

Standard grades for vegetables were developed by the United States Department of Agriculture, and the Navy bases its inspection on those standards. When deliveries are made, inspections must be conducted to find out if specifications have been met. Because of their perishability, fresh vegetables must be handled with care. Do not pinch, squeeze, or touch them unnecessarily because bruising leads to decay and results in early spoilage. The vegetables listed below are procured for the Navy. The characteristics that indicate good quality are listed below.

ASPARAGUS—Look for stalks that are straight, fresh appearing, crisp and tender, with compact pointed ends and with only 1 inch or so of tough woody base to cut off.

BEETS—Look for good, globular shapes with smooth, firm flesh. Medium-sized beets are less likely to be tough than very large ones.

CABBAGE—Look for well-trimmed, solid heads that are heavy for their size and show no discolored veins.

CARROTS—Check for bright-colored carrots that are well shaped and medium sized and about 1 1/2 inches in diameter.

CAULIFLOWER—A jacket of bright green denotes freshness. The head should be white or creamy white, clean, and solidly formed. If the flower clusters are spread or open, the vegetable will be of poor quality.

CELERY—Quality characteristics for both the bleached and the green celery are the same. Leaf stems or stalks should be brittle enough to snap easily and of medium length and thickness. The inside of the stem should be smooth. If it feels rough or puffy to your fingers, the celery is likely to be pithy.

CORN—This may be either white or yellow. The husk is a fresh green color, while the kernels are tender, milky, and sufficiently large to leave no space between the rows. Ears generally should be filled to the tips, with no rows of kernels missing.

CUCUMBERS—The best cucumbers are firm in texture and bright green in color. The older ones tend to be a deep black green or sometimes yellow. Cucumbers of less than 7 inches in length and about 2 inches in diameter are best.

EGGPLANT—Purple eggplant should be of a clear, dark, glossy color that covers the entire surface. Heaviness and firmness of flesh are important. Choose pear-shaped eggplant from 3 to 6 inches in diameter. Decay shows up in dark brown spots. Wilted, soft, or flabby eggplant should be discarded.

ENDIVE—Curly endive is grown in a bunched head with narrow, ragged-edge leaves that curl at the ends. The center of the head is a yellowish white and has a milk taste, while the dark green outer leaves have a bitter taste.

ESCAROLE—Escarole is a variety of endive. The leaves are broad and do not curl at the end. The leaves should be crisp, fresh, and tender.

LETTUCE—"Iceberg" lettuce is usually purchased for the Navy. It is tightly headed lettuce, medium green on the outside with a very pale green heart. Discolored areas on the leaves indicate decay. Soft rot sometimes penetrates to the center of the head.

ONIONS—Spanish and American types of onions, both grown in the United States, are used by the Navy. Dry onions should be bright, clean, hard, well shaped, and dark skinned. Moisture around the neck indicates decay.

ONIONS, GREEN—These should be fresh in appearance, should have fresh green tops and medium-sized necks that are blanched for at least 2 or 3 inches from the roots, and should be young, crisp, and tender. Bruised, yellow, wilted tops indicate poor quality. The condition of the tops can be learned by puncturing them with the thumbnail and twisting.

PARSNIPS—Young parsnips that are 1 1/2 to 2 inches in thickness and free from rust spots are the best. Withered parsnips are old, tough, and have a strong flavor.

PEPPERS—These should be well shaped, thick walled, and firm, with a uniform glossy color. A pale color and soft seeds are signs of immaturity. Sunken, blisterlike spots on the surface indicate that decay may set in rather quickly.

POTATOES—Good-quality white potatoes are generally clean, firm, and free from cuts, growth cracks, and other surface defects. Watch for frost-damaged potatoes that generally have a watery appearance or show a black ring near the surface when cut in half.

SWEET POTATOES—Thick, chunky, medium-sized sweet potatoes that taper toward the end are the best. Avoid those with any sign of decay, as such deterioration spreads rapidly, affecting the taste of the entire potato, even in portions not immediately adjacent to the decayed area.

RADISHES—Good quality is indicated by the root which should be smooth, crisp, and firm, never soft or spongy.

RHUBARB—Fresh, large, crisp, straight stalks of red or cherry color are best. The condition of the leaves is a reliable guide in judging the freshness of the vegetable.

RUTABAGAS—Good-quality rutabagas should be smooth skinned, firm, and heavy for their size.

SQUASH—Avoid hard rinds on the following:

> Buttercup—are shaped somewhat drum-like with sides slightly tapered near the apex.
>
> Zucchini—are cylindrical in shape with fairly square ends; skin color is moderately dark green over a background color of pale yellow.
>
> Yellow straight-necked or crooked-necked—are a very brilliant light yellow in color.

Hard tough rinds are desirable however on the following as soft rinds are apt to have a watery flesh that is flat to the taste:

> Acorn—are acorn shaped and very dull, blackish green in color with dull orange interior.
>
> Hubbard—are oval in shape with pointed neck. Skin may be smooth or warted. Color ranges from green to orange. Medium to large size is best.

TOMATOES—Look for tomatoes that are firm, plump, fairly well formed, of good color (green out of season and bright red in season), and free from blemishes. They are one of the tenderest products and must be handled with care. Misshapen, angular, ribbed, or scarred tomatoes are of poor quality.

TURNIPS—Look for turnips that have smooth skin, firmness, and good weight for their size.

DRY STORES

Dry stores are such foods as cereals, sugar, dried fruits, vegetables, flour, and meal. They must be stored in an area in which the temperature, humidity, and air circulation are controlled.

Insects can cause great damage to stored food by attacking both natural and manufactured food. Food stored at temperatures between 60° and 90°F are especially attractive to insects.

All dry stores have previously been inspected by the United States Department of Agriculture; however, you should check the condition of the containers thoroughly upon receipt of the stores. If there are any signs of contamination, infestation, or any signs of abnormal conditions consult your medical representative.

DAIRY PRODUCTS

Dairy products spoil quickly under improper storage conditions. The method of handling and the storage temperature must be correct. It is necessary that you check them carefully upon delivery and frequently thereafter until they are consumed.

MILK AND CREAM—Delivery inspections of dairy products are normally conducted by personnel attached to the receiving activity. This includes foodservice personnel at most facilities and veterinary corps personnel when available. These inspections must ensure that milk and milk products are from an approved source and delivered in containers that are in good condition and properly sealed.

These products must also be acceptable according to sight, smell, and taste, and have a delivery temperature of 45°F (7.2°C) or less as prescribed in the current Defense Personnel Support Center (DPSC) contract.

BUTTER—Butter should reach you in clean, unbroken cases. The inspection stamped on the case should indicate the weight and the grade of the butter. To test for quality, it is best to taste samples for sweetness and freshness. The color should be uniform and the texture firm. No specks or foreign substances should be present.

CHEESE—Check the rind, color, flavor, and texture of cheese. It may be delivered to you in either natural or processed form. The rind should be clean and free from molds or wrinkles. The color should be evenly distributed through good cheddar cheese. You can check this by holding a thin slice of cheese in front of a light. The flavor of good cheese is clean and "nutty" and the texture compact and solid. There should be no breaks or holes in the surface of the cheese.

EGGS—Fresh, frozen, and dehydrated eggs are produced for use in the Navy messes.

When eggs meet the Navy specifications, the containers are marked at the time of delivery by the inspector to show their grade and the date of inspection.

RECEIPT

Deliveries can usually be anticipated because of shipment notices, delivery dates on requisitions or other notifications, and preparations should be made to receive the material. Receiving personnel should be ready to inspect the material, storerooms should be ready to receive the material, and the necessary arrangements for working parties should be made well in advance so that once the anticipated material arrives it may be stored immediately to prevent temperature fluctuations. Such fluctuations will reduce the quality and storage life of food items.

SAFETY

All personnel involved in receiving and storing food items must receive instructions on the following safety precautions:

- The proper method of lifting heavy objects
- Wearing of protective hats, safety shoes, and gloves
- Operation of materials-handling equipment such as forklifts, pallet jacks, and portable conveyors
- Removal of hatch covers and ladders

DESIGNATED RECEIVER

When food items are received, the food service officer or a designated assistant will inspect the food items to verify the exact quantity received and sign the receiving documents to acknowledge receipt.

Custody

The bulk storeroom storekeeper having custody of the food items delivered accepts responsibility by signing a statement on the invoice that normally reads, "I accept responsibility for these items and hold myself accountable to the United States Government."

Date Stamping

Food items must be date-stamped or color-coded to ensure that the oldest stock is used first.

UNSATISFACTORY FOOD ITEMS

The subsistence supply system has quality assurance provisions designed to guarantee the receipt of wholesome, satisfactory food products. However, the system does experience breakdowns in specification standards allowing some unsatisfactory products to filter into the supply pipeline.

Nonhazardous

These food items do not meet expected or desired standards, but do not constitute a health hazard to personnel if consumed. A good example of this would be chicken wings in a box labeled breasts.

Hazardous

These food items would possibly cause, or are suspected to have already caused, harm after being consumed. Determination of fitness for human consumption is the responsibility of the medical officer. Examples of hazardous food item characteristics are as follows:

- Widespread presence of swollen or leaking cans

- Products with either offensive or unusual odors and colors, or any other evidence of deterioration

Refer to *Foodservice Management*, NAVSUP P-486, volume I, for more information regarding the reporting and handling of nonhazardous and hazardous food items.

POSTING RECEIPTS

When you are posting receipts, there are two pieces of information that must be transcribed to general mess records. They are the quantity received and the value of the receipt. Receipts are posted to the following records:

- Record of Receipts and Expenditures, NAVSUP Form 367
- Subsistence Ledger, NAVSUP Form 335
- Stock Tally Card, NAVSUP Form 209
- Requisition Log, NAVSUP Form 1336

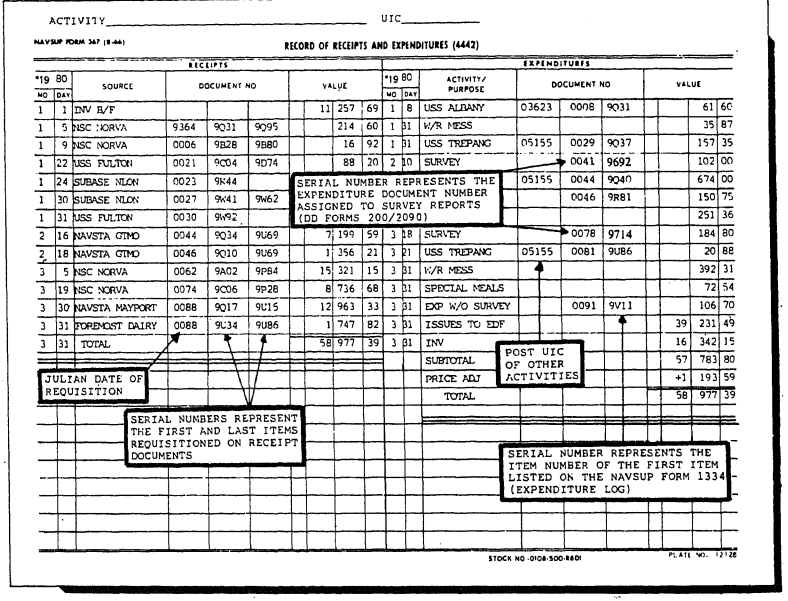

ACTIVITY
UIC
NAVSUP FORM 367 (8-66)
RECORD OF RECEIPTS AND EXPENDITURES (4442)
RECEIPTS
EXPENDITURES
*19 80
MO DAY
SOURCE
DOCUMENT NO
VALUE
ACTIVITY/ PURPOSE
1 1 INV B/F 11 257 69
1 5 NSC NORVA 9364 9031 9095 214 60
1 9 NSC NORVA 0006 9B28 9B80 16 92
1 22 USS FULTON 0021 9C04 9D74 88 20
1 24 SUBASE NLON 0023 9K44
1 30 SUBASE NLON 0027 9W41 9W62
1 31 USS FULTON 0030 9W92
2 16 NAVSTA GTMO 0044 9Q34 9U69 7 199 59
2 18 NAVSTA GTMO 0046 9Q10 9U69 1 356 21
3 5 NSC NORVA 0062 9A02 9P84 15 321 15
3 19 NSC NORVA 0074 9C06 9P28 8 736 68
3 30 NAVSTA MAYPORT 0088 9Q17 9U15 12 963 33
3 31 FOREMOST DAIRY 0088 9U34 9U86 1 747 82
3 31 TOTAL 58 977 39
*19 80
MO DAY
ACTIVITY/ PURPOSE
DOCUMENT NO
VALUE
1 8 USS ALBANY 03623 0008 9031 61 60
1 31 W/R MESS 35 87
1 31 USS TREPANG 05155 0029 9037 157 35
2 10 SURVEY 0041 9692 102 00
05155 0044 9040 674 00
0046 9R81 150 75
251 36
0078 9714 184 80
3 21 USS TREPANG 05155 0081 9U86 20 88
3 31 W/R MESS 392 31
3 31 SPECIAL MEALS 72 54
3 31 EXP W/O SURVEY 0091 9V11 106 70
3 31 ISSUES TO EDF 39 231 49
3 31 INV 16 342 15
SUBTOTAL 57 783 80
PRICE ADJ +1 193 59
TOTAL 58 977 39
SERIAL NUMBER REPRESENTS THE EXPENDITURE DOCUMENT NUMBER ASSIGNED TO SURVEY REPORTS (DD FORMS 200/2090)
POST UIC OF OTHER ACTIVITIES
JULIAN DATE OF REQUISITION
SERIAL NUMBERS REPRESENT THE FIRST AND LAST ITEMS REQUISITIONED ON RECEIPT DOCUMENTS
SERIAL NUMBER REPRESENTS THE ITEM NUMBER OF THE FIRST ITEM LISTED ON THE NAVSUP FORM 1334 (EXPENDITURE LOG)
STOCK NO 0108-500-8801
PLATE NO. 12128

Figure 4-14.—Record of Receipts and Expenditures, NAVSUP Form 367.

The total money value of each receipt document is posted to the Record of Receipts and Expenditures, NAVSUP Form 367 (see fig. 4-14). The first entry is always the inventory value carried forward from the previous quarter. Next, each receipt document is posted to the applicable page of the Subsistence Ledger, NAVSUP Form 335. A separate page of the NAVSUP Form 335 is prepared for each item carried in stock (see fig. 4-15).

One difference you should notice on figure 4-15 is the unit price. Unlike other stock items, food items have two unit prices, the fixed price and the last receipt price. Since the purchase price for food items on the commercial market fluctuates and the general mess must operate on a fixed ration allowance, NAVFSSO establishes a fixed price for most items that are used in the general mess. Thus, the same charge is made throughout the accounting period for an item with a fixed price regardless of the current market or last receipt price. On the other hand, the last receipt price and the date an item is received are entered in the spaces provided to allow this price to be used to survey, transfer, or sell items to private messes. Also, this price is used to charge out items that do not have fixed prices to the general mess, and to extend the inventory value.

The use of the Stock Tally Card, NAVSUP Form 209, is optional but strongly recommended. If the cards are used, both the bulk storeroom storekeeper and the jack-of-the-dust should maintain separate sets. When both the issue and bulk storerooms are under the custody of the same storekeeper, only one set of stock tally cards needs to be maintained to show the total stock on hand in both the issue and bulk storerooms. Refer to

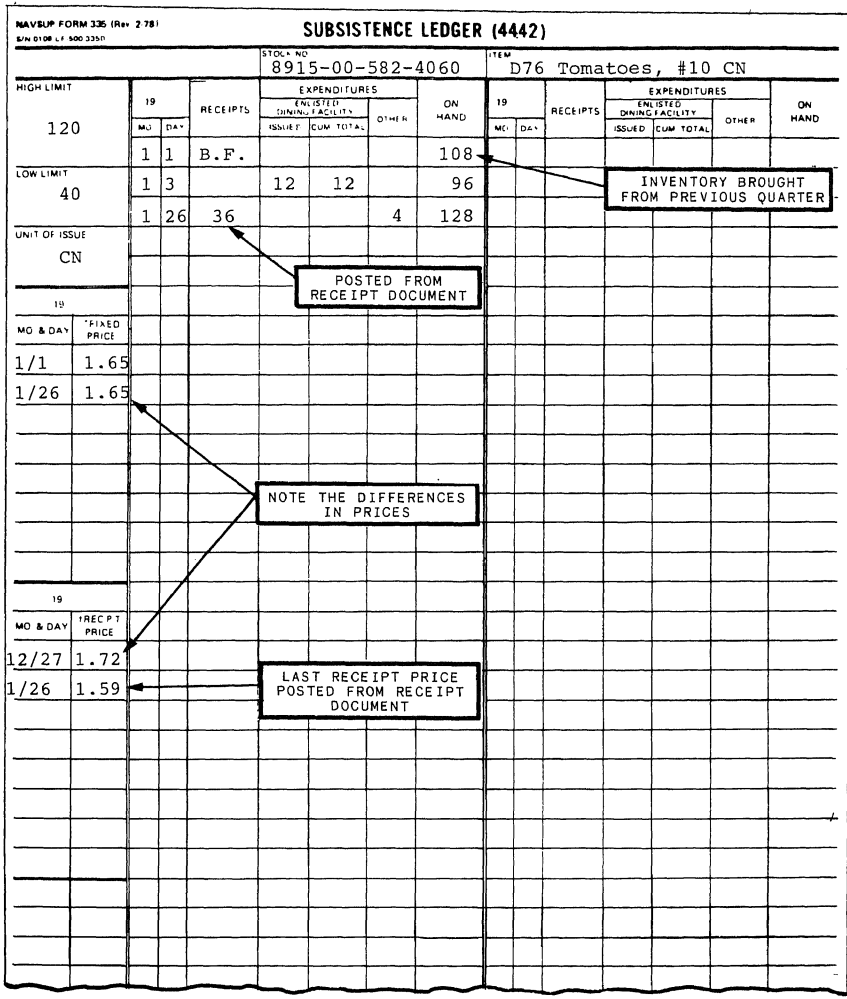

NAVSUP FORM 335 (Rev 2-78)
S/N 0108-LF-500-3350
SUBSISTENCE LEDGER (4442)
STOCK NO 8915-00-582-4060
ITEM D76 Tomatoes, #10 CN
HIGH LIMIT 120
LOW LIMIT 40
UNIT OF ISSUE CN
19 MO DAY RECEIPTS EXPENDITURES ENLISTED DINING FACILITY ISSUED CUM TOTAL OTHER ON HAND
1 1 B.F. 108
1 3 12 12 96
1 26 36 4 128
INVENTORY BROUGHT FROM PREVIOUS QUARTER
POSTED FROM RECEIPT DOCUMENT
19 MO & DAY *FIXED PRICE
1/1 1.65
1/26 1.65
NOTE THE DIFFERENCES IN PRICES
19 MO & DAY †RECPT PRICE
12/27 1.72
1/26 1.59
LAST RECEIPT PRICE POSTED FROM RECEIPT DOCUMENT

Figure 4-15.—Subsistence Ledger, NAVSUP Form 335.

B02 9M 8910-00-126-8740 CN

(Stock No.) (Unit)

Description: Apples, Canned, #2 — Unit Price: $.29

Location: C-301

High Limit: 2,016

Low Limit: 1,392

DATE	REC'D	ISSUED	BALANCE	DATE	REC'D	ISSUED	BALANCE
1/1	B.F.		1,427	3/11		96	1,487
1/3		72	1,355	3/14		72	1,415
1/5	648		1,991	3/16	648	12	2,051
1/9		96	1,895	3/18		216	1,835
1/12		240	1,655	3/20		72	1,763
1/14		96	1,559	3/25		72	1,691
1/17		12	1,547	3/26		24	1,667
1/19		120	1,427	3/29		72	1,595
1/23	648	120	1,955				
1/28		108	1,847				
2/2		96	1,751				
2/6		120	1,631				
2/8		12	1,619				
2/10		72	1,547				
2/13		120	1,427				
2/17		12	1,415				
2/18	648	72	1,991				
2/23		72	1,919				
2/27		84	1,835				
3/1		120	1,715				
3/5		12	1,703				
3/6		120	1,583				

STOCK TALLY—NAV. S. AND A. FORM 209 (REV. 1-48) 1A-0108-500-4200

NOTE:
INFORMATION IS TYPED ON ILLUSTRATION ONLY FOR LEGIBLE PRINTING PURPOSES

Figure 4-16.—Stock Tally Card, NAVSUP Form 209.

figure 4-16 for an example of a completed NAVSUP Form 209.

Figure 4-17 gives an illustration of the receipt posting process.

STORAGE

Storage of food items is important because the conservation of and accessibility to various food items depend greatly on proper storage procedures. Correct storage is also an important aspect of the sanitary and safety precautions that are necessary to prevent both food-borne illness and personal injury.

PRINCIPLES OF STORAGE

Certain basic storage principles must be observed regardless of the type of items.

Safety

Materials must be stored so as to prevent injury to the ship and the crew and to prevent damage to the material itself. Articles stored overhead and on top of bins must be secured with particular care because the lashing or other means of securing may be subjected to heavy strain while the ship is underway.

Accessibility

Supplies must be arranged in storage so as to facilitate breakouts. Articles that are issued most frequently should be located nearest to the breakout area. Whenever possible, avoid storing an item on top of or behind a different kind of material. Failure to observe this rule causes slow breakouts and slow and inaccurate inventories. Items must be stored so that, under ordinary conditions, the oldest stock will be the first issued.

Orderliness

Case goods should be stored neatly in the storage area so that they can be counted by sight without being moved.

Safety, accessibility, and orderliness are closely interrelated and must be considered together. For instance, if, for the sake of accessibility, you leave cases of canned goods stacked in the passageway, or if you do not secure them properly, you will violate rules of safety and orderliness. If such a practice were carried to an extreme, you would eventually have such confusion that accessibility would suffer also.

SEMIPERISHABLE FOOD ITEMS

Semiperishable refers to food items that are canned, dried, dehydrated, or otherwise processed to the extent that such items may, under normal conditions, be stored in a nonrefrigerated space. While semiperishable food items are not nearly so prone to spoilage as perishable food items, spoilage can and will occur if the items are mishandled, improperly stored, or stored too long. Always remember the length of storage

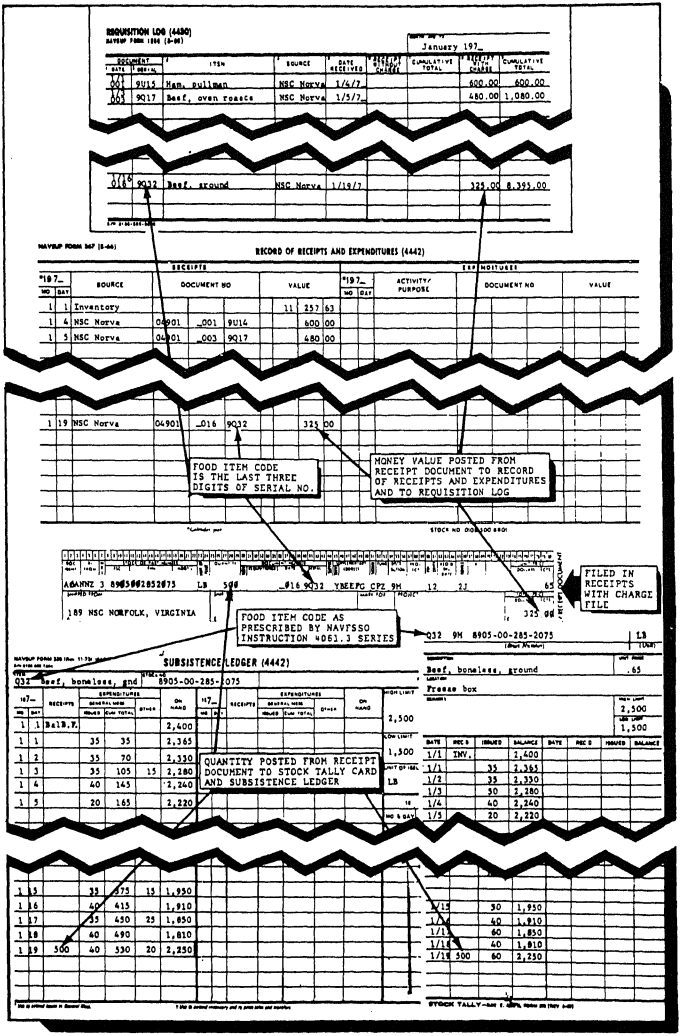

REQUISITION LOG (4430)
January 197_
RECORD OF RECEIPTS AND EXPENDITURES (4442)
FOOD ITEM CODE IS THE LAST THREE DIGITS OF SERIAL NO.
MONEY VALUE POSTED FROM RECEIPT DOCUMENT TO RECORD OF RECEIPTS AND EXPENDITURES AND TO REQUISITION LOG
FILED IN RECEIPTS WITH CHARGE FILE
FOOD ITEM CODE AS PRESCRIBED BY NAVFSSO INSTRUCTION 4061.3 SERIES
SUBSISTENCE LEDGER (4442)
QUANTITY POSTED FROM RECEIPT DOCUMENT TO STOCK TALLY CARD AND SUBSISTENCE LEDGER
STOCK TALLY

Figure 4-17.—Posting receipts.

should be based on the packing date of the product and not the date of receipt.

Storage Principles

When possible, store semiperishable food items in clean, cool, dry, well-ventilated storerooms. Check all items at regular intervals for signs of damage. Keep your storerooms clean to prevent the contamination of bagged foods by dirt and dust.

Segregate and clearly mark shipments so that the oldest lots—as packed, not as received—are issued first. However, if newer lots show signs of deterioration or spoilage, they should be issued first.

Methods of storage depend on the size and the contents of the container and the bursting or breaking strength of the bottom layers. Care must be taken not to stack items too high because of the danger of bursting or crushing the bottom layers.

Do not stack items near steam or other heated pipes. Use pallets or deck grating to raise the items off the deck and stack individual lots so as to permit proper circulation of air and facilitate cleaning.

Bagged items and those requiring insect control should not be stored in large lots in corners of the storeroom or directly against the bulkhead. This type of storage will not permit sufficient room for cleaning and inspecting. Whenever possible, palletized storage should be used to ease the handling of the stores and reduce losses through breakage in handling.

The safe storage period for dry food items varies greatly, depending on such elements as temperature, humidity, care in handling, protection from the weather, quality of the food when received, and the packing. Food items that have been on hand beyond the safe storage limit should be inspected for spoilage, leakage, or other damage. If such items are in good condition, use them as promptly as possible. Survey all items unfit for human consumption according to the NAVSUP P-486, volume I, chapter 6.

Rotation of Semiperishable Food Items

Refer to NAVSUP P-486, chapter 5, for detailed information regarding the rotation of semiperishable food items. Study this table carefully. It is not practical to memorize it, but by careful study you will develop general ideas about the keeping times of the various foods and the changes that indicate a food item has been kept too long. The keeping times shown are average keeping times for products stored at 70 °F. The 70 °F temperature is representative of average temperatures at most Navy stock points. Keeping times will be reduced by approximately 50 percent if storage temperatures are maintained at 90 °F. Keeping times will be increased by approximately 100 percent if storage temperatures are maintained at 40 °F.

Spoilage

Age, bacteria, yeasts, molds, insects, rodents, and environmental factors contribute to the deterioration of all foodstuffs.

Age is one of the contributing factors in food spoilage. Therefore, to prevent spoilage due to age you should always observe the basic principle of storage, which is—the oldest lots of food items should always be used first except when the condition of a newer item is such that it must be given priority.

Bacteria, yeasts, and molds are the primary causes of food spoilage. Canned foods may be spoiled by bacteria that have survived the canning process or by bacteria that have gained access to the can through imperfections in or damage to the containers. Spoilage is evidenced by the development of gas and in most cases by a foul odor or bad taste. Yeast growth creates damage, particularly at temperatures between 77 ° and 95 °F, to products with a sugar content, such as honey, syrup, dried fruits, sweet beverages, fruit concentrates, and canned fruits.

Molds produce visible threadlike filaments, musty odors, and off-flavors in the product in which they are growing. Surface molds on firm-textured foods such as meats and meat products are not necessarily harmful.

Insects can, and do, cause great damage to stored foods, attacking both natural and manufactured food. Roaches and flies not only contaminate the foods but may spread disease. Foods stored at temperatures between 60 ° and 90 °F are especially attractive to insects. As soon as insect infestation is discovered in food items, they should be segregated to prevent the insects from spreading to other items. If they are not too heavily infested, they may be reconditioned for use after obtaining medical department approval. Use insect repellents carefully so as not to contaminate the food or cause damage by absorption of the fumigant or insecticide flavor into the food.

Rodents (rats and mice) not only physically destroy food by feeding, chewing, and cutting the bags for nests or nesting material, but also contaminate food with their excreta and hairs. They are carriers of filth and disease. The most effective method of control is to prevent the entry of these animals into the storerooms.

Physical environmental factors that contribute to the spoilage of dry food items include freezing temperatures, heat, moisture, lack of ventilation, and exposure to light. Dry products such as grains, flour, sugar, starch, cereals, and dehydrated foods ordinarily are not injured by freezing. If canned foods containing large amounts of water are frozen, the usefulness and taste of the products will not be harmed; however, the physical appearance may be affected. Emulsions such as canned cheese and butter, prepared mustard, and mayonnaise will separate and appear unpalatable, although the food is not spoiled.

A high storage temperature over long periods of time is very detrimental to most food products. It encourages bacterial growth, mold growth, and insect infestation. Flour and associated products (barley, cereals, cornmeal, cornstarch, crackers, biscuits, hominy, noodles, oats, rice, spaghetti, macaroni, tapioca, and uncooked wheat) are made more subject to insect infestation by heat. These items also readily absorb distinctive odors. Moisture hastens the growth of insects, bacteria, and molds, and sometimes causes mustiness in flour, rice, and similar foods. Check your dried vegetables and fruits at frequent intervals to determine if this condition exists. Store any items that are not sealed in metal containers away from moisture and odor-producing materials.

Dehydrated products are subject to moisture absorption, insect infestation, and mold. Loss of flavor and discoloration (darkening) will occur with age; this action is progressive and is hastened by high temperature.

Improper ventilation and too much light can also add to the deterioration of foods. High humidity and the lack of proper ventilation may cause very high temperatures in storerooms. Therefore, proper ventilation is one of the most important factors in protecting foods, particularly in tropical areas.

Damage from light is restricted to products that are packed in glass or other transparent containers. Exposure to light causes color changes and may affect the flavor of foods containing, or composed of, oils and fats.

PERISHABLE FOODS

All foods are perishable. The term *perishable* as applied here refers to food items requiring refrigeration and special handling.

All fresh and frozen food items are highly perishable and subject to rapid deterioration when improperly stored. They require accurate temperatures, controlled humidity, air circulation, and special care in keeping the storage space sanitary. Failure to maintain any one of these conditions will result in rapid spoilage and eventual loss. Most spoilage in fresh and frozen food items is caused by bacteria and fungi and spreads rapidly from the decayed items to the sound food items.

You may be assigned as the MS in charge of the cold storage area. When such is the case, your duties regarding storage and care of fresh and frozen food items are as follows:

- Make frequent inspections, sort, and remove any decayed items or portions. This will keep losses and surveys to a minimum.

- Segregate and mark shipments to make clear their relative ages. This will facilitate the issue of the oldest food being issued first unless there is some reason (the condition of a newer lot) for giving the newer lot priority.

- Inspect food items to ensure that DOD requirements are met. In the event frozen stores are received in a thawed or partially thawed condition, seek medical advice and refer to NAVSUP P-486, chapter 5, for survey procedures.

Refrigerator Log

A refrigerator (or reefer) log must be maintained by the person responsible for the refrigerated spaces. Temperature readings must be taken twice daily and at other times as necessary. The reefer log is presented daily to the leading MS and the food service officer for review and initialing. Temperature irregularities must be reported to the leading MS and the food service officer immediately.

Dairy Products

Keep the cold storage room for dairy products and eggs fresh by keeping it clean and by circulating the air slowly. Air circulation can be facilitated by the use of pallets or deck gratings and by the proper stacking of the various lots.

Raise the containers off the deck with pallets or gratings and provide space between stacks to permit the circulation of air. In some cases it may be necessary to use a fan to maintain adequate circulation of all parts of the storeroom.

SAFETY PRECAUTION: When fresh fruits and vegetables are stored in a tight compartment at temperatures of 40 °F or higher, the concentration of the carbon dioxide produced by respiration may reach a level in which it is unsafe to work. One way to check the amount of carbon dioxide present in a room is to light a match or candle. If the light is extinguished, do not work in the space until fresh air has been introduced.

Meat and Meat Products

Proper circulation of air is of prime importance in keeping the desired temperature in all parts of the meat storage space. Do not stack cases directly on the deck; use pallets or deck gratings to allow free circulation of air under all items stored in the space. Stacks should be at least 4 inches from the bulkhead or refrigeration coils. Generally, when the recommended temperature in all parts of the refrigerated space is uniform within the stacks, the circulation of air in the space is considered adequate.

Frozen Fruits and Vegetables

Frozen fruits and vegetables are highly perishable unless properly stored. Upon delivery, they must be transferred promptly to a low-temperature storage space. Check the temperature of the load upon arrival by taking temperature readings of cartons selected from top layers inside of shipping cases.

When the temperature is found to be higher than that of the freezer room, scatter the shipping cases loosely about the room on hand trucks or on the deck with adequate space between individual cases to permit rapid lowering of the product temperature to freezer room temperature. Use of a portable fan to create an air current over the item will speed up temperature equalization. When the temperature of the item has been lowered sufficiently, stack the cases compactly at once. Stack from the bulkhead toward the center of the room, starting about 4 inches from the bulkhead or bulkhead coils. Stack the cases on pallets to permit the circulation of air under them.

directly from blower units at the ends of the rooms, the cases should be stacked low enough to permit air circulation. Allow at least 2 feet between the top of the stack and the overhead or air ducts.

Storage Life of Frozen Perishable Foods

The storage temperature of all frozen perishable food items should not exceed 0 °F. Refer to NAVSUP P-486, chapter 5, for the approximate storage life of frozen items under ideal conditions.

REFRIGERATION UNITS

Three factors affect the rate at which frost and ice accumulate on refrigerator coils: (1) door traffic; (2) excessive temperature difference between the coils and the box; and (3) moisture from the stored materials. In each case the buildup can be reduced by properly planned and executed breakout procedures. Measures discussed in the following paragraphs may be used to prevent excessive icing of coils.

Door Traffic

Breakouts should be planned for a full day's requirements. All messes must draw their frozen subsistence items at a predetermined time, usually in the morning. Any items withdrawn at this single daily breakout from the freeze box, if not intended for immediate use, should be stored temporarily in the chill box.

This one breakout per day should be strictly enforced. With a little planning on the part of the various messes, it should not be too difficult. In this way, the reefer temperature will remain constant and excessive icing from too much door traffic will be kept to a minimum.

Temperature Controls

A difference in the temperature of the refrigerated spaces and the refrigerations coils will cause vapor to form on the coils and the refrigeration coils turn the vapor into ice. This ice

formation continues until the temperatures of the coils and the refrigerated spaces equalize.

The temperatures of the coils and the refrigerated spaces are likely to differ most during the period when the freeze box is being restored. The higher temperature of the food items being stored will cause a rise in temperature in the refrigerated space and produce vapors. There is no way to prevent this condition, since the work of storing must go on. However, once the storage has been completed, the box should remain closed until the normal temperature level of the freeze box has been reached.

Air Circulation

Proper storage and adequate air circulation help prevent excessive ice formation. Continuous circulation by electric blowers is necessary at all times. Storage arrangements should allow free circulation of air throughout the box.

Adequate aisles and overhead space should be provided to permit the free circulation of air from the blowers. Blowers should be inspected each day to ensure proper operation. Any malfunction in the circulating unit should be reported immediately.

Defrosting and Cleaning Refrigerators

The refrigeration coils and units in cold storage spaces should be defrosted as often as possible. A layer of frost or ice 1 inch or more in thickness will reduce the efficiency of the refrigeration system and may result in overloading the compressors. The *Naval Ships' Technical Manual* recommends defrosting before the average frost thickness reaches three-sixteenths of an inch in the average cold storage refrigeration plant. Always consult the engineering department regarding the defrosting of the refrigeration system.

Most refrigeration units are so equipped that hot gas can be run through the cooling coil to melt the ice. Then the bulkheads, the overhead, and the deck remain cold because of the speed with which the coils are defrosted and there is no necessity for moving the food. This method of defrosting should be employed on all ships equipped with such a hot gas capability, since refrigeration is not interrupted. If your cold storage plant is not of this type, it will be necessary to consult with the engineering department to determine other methods of defrosting. And, of course, you should never use an ice pick or a sharp tool to pick ice from the coils.

Once defrosting is completed by a non-hot gas method, scrub and wash the box thoroughly with hot soapy water. Rinse, dry, and air the box and return the food to its place immediately.

CHAPTER 5

ISSUING AND ACCOUNTING FOR FOOD ITEMS

Control of food items in the general mess (GM) must follow established procedures. Failure to follow established procedures results in poor inventory validity, large inventory adjustments, and financial instability in the GM.

In this chapter, you will become familiar with the following information:

- Procedures and documents used to transfer food items from the bulk storeroom to the issue room storeroom
- Methods used in issuing food items from the issue room to the galley
- Procedures and documents used to transfer food items from combined bulk and issue room storerooms to the galley
- Purposes of the different types of surveys used in the GM
- Inventory types and requirements
- Actual inventory procedures and necessary records and adjustments

EXPENDITURES

Food items may be expended by issue, transfer, sale, or survey.

ISSUES

Issues (or breakouts) of food items to the GM must be made on preapproved breakout documents and follow established procedures. These procedures will be explained next.

Bulk Storeroom to Issue Storeroom Procedures Afloat

Breakouts of food items from the bulk storeroom to the issue room must not be made without an approved issue document, such as a Food Item Report/Master Food Code List, NAVSUP Form 1059, or a Food-Item Request/Issue Document, NAVSUP Form 1282.

ISSUING PROCEDURE.—Request for breakouts from the bulk storeroom must be made on either a NAVSUP Form 1282 or a NAVSUP Form 1059, each prepared in triplicate. (See figs. 5-1 and 5-2.)

DOCUMENT DISTRIBUTION AND POSTING.—The completed form is signed by both the bulk storeroom and issue storeroom storekeepers and distributed as follows:

1. The original is retained under lock and key by the food service officer (FSO).
2. The duplicate is retained by the bulk storeroom storekeeper for posting either to the Stock Tally Card, NAVSUP Form 209, or the Subsistence Ledger, NAVSUP Form 335, whichever is used.
3. The triplicate is retained by the issue room storekeeper for posting to the NAVSUP Form 209 or NAVSUP Form 335.

Issue Storeroom to Galley Procedure

Breakouts to the galley from the issue storeroom are made on an approved NAVSUP Form 1282 or NAVSUP Form 1059.

DOCUMENT PREPARATION.—The FSO established controls to account for each breakout document. When dry, fresh, and frozen items are in the custody of different individuals, separate breakout documents must be prepared (fig. 5-2).

When the NAVSUP Form 1282 is used, care must be taken to list items in the order in which they appear on the NAVSUP Form 1059. The food item code number from the NAVSUP Form 1059, Master Food Code List portion, must be entered to assist with posting to the NAVSUP

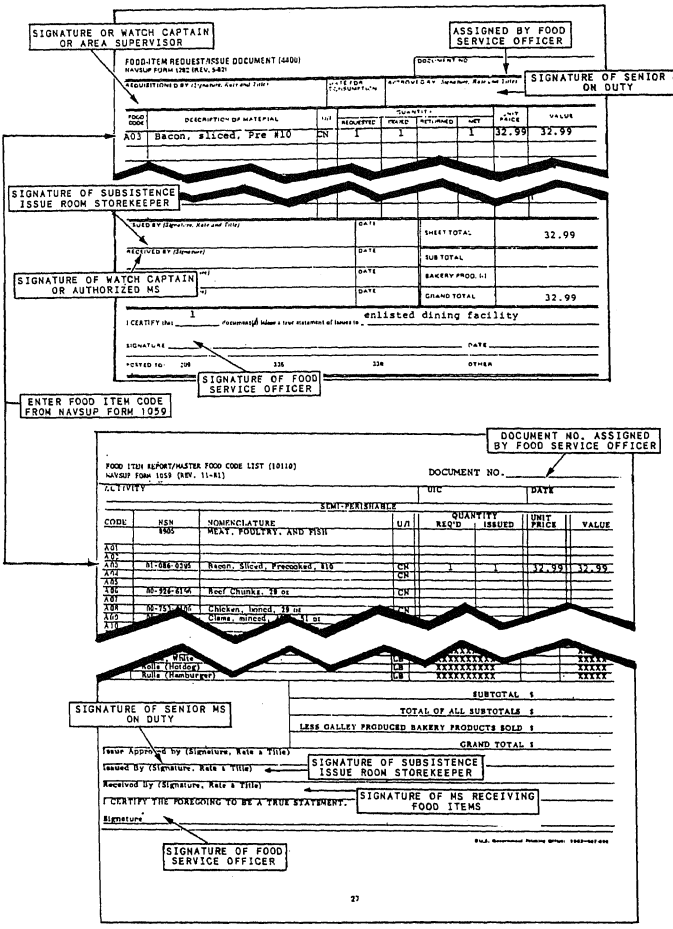
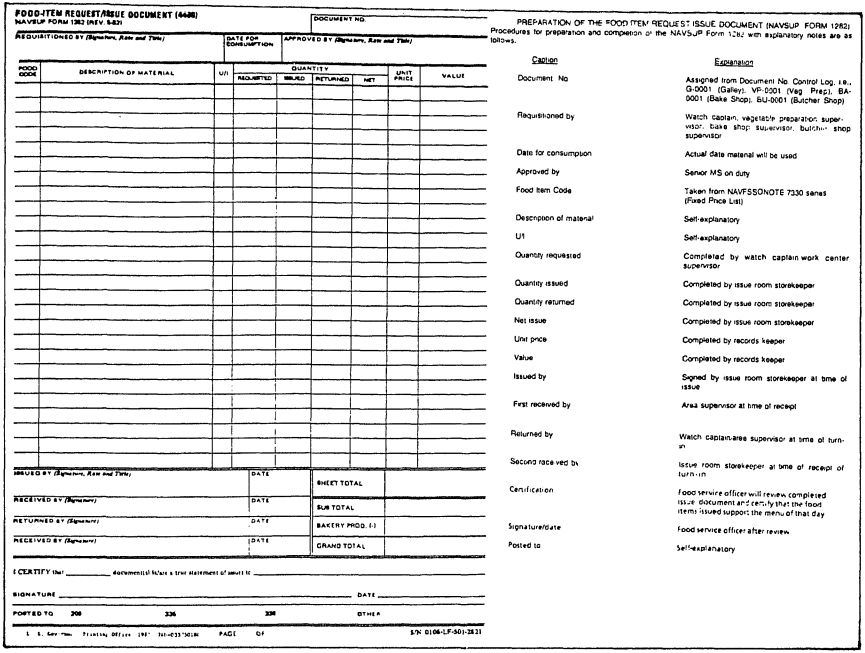

SIGNATURE OR WATCH CAPTAIN OR AREA SUPERVISOR
ASSIGNED BY FOOD SERVICE OFFICER
SIGNATURE OF SENIOR MS ON DUTY
SIGNATURE OF SUBSISTENCE ISSUE ROOM STOREKEEPER
SIGNATURE OF WATCH CAPTAIN OR AUTHORIZED MS
SIGNATURE OF FOOD SERVICE OFFICER
ENTER FOOD ITEM CODE FROM NAVSUP FORM 1059
DOCUMENT NO. ASSIGNED BY FOOD SERVICE OFFICER
SIGNATURE OF SENIOR MS ON DUTY
SIGNATURE OF SUBSISTENCE ISSUE ROOM STOREKEEPER
SIGNATURE OF MS RECEIVING FOOD ITEMS
SIGNATURE OF FOOD SERVICE OFFICER

Figure 5-1.—Food-Item Request/Issue Document, NAVSUP Form 1282, and Food Item Report Master Food Code List, NAVSUP Form 1059.

Form 335 and to the NAVSUP Form 209. (See figs. 5-1 and 5-2.)

REQUIRED SIGNATURES.—Signatures on breakout documents serve as authorization and transfer accountability. Therefore, the importance of following established procedures cannot be overemphasized.

ISSUES.—The jack-of-the-dust (issue room storekeeper) issues the food items requested using a NAVSUP Form 1282, enters the actual



FOOD-ITEM REQUEST/ISSUE DOCUMENT (4430)
NAVSUP FORM 1282 (REV. 5-82)

DOCUMENT NO.

REQUISITIONED BY (Signature, Rate and Title) | DATE FOR CONSUMPTION | APPROVED BY (Signature, Rate and Title)

FOOD CODE	DESCRIPTION OF MATERIAL	U/I	QUANTITY REQUESTED	QUANTITY ISSUED	QUANTITY RETURNED	QUANTITY NET	UNIT PRICE	VALUE

ISSUED BY (Signature, Rate and Title) | DATE | SHEET TOTAL
RECEIVED BY (Signature) | DATE | SUB TOTAL
RETURNED BY (Signature) | DATE | BAKERY PROD. (-)
RECEIVED BY (Signature) | DATE | GRAND TOTAL

I CERTIFY that _____ documentation is/are a true statement of issue to _____

SIGNATURE _____ DATE _____

POSTED TO: 209 335 336 OTHER

U. S. Gov. Printing Office: 1987-033-501/60000 PAGE ___ OF ___ S/N: 0106-LF-501-2831

PREPARATION OF THE FOOD ITEM REQUEST ISSUE DOCUMENT (NAVSUP FORM 1282)

Procedures for preparation and completion of the NAVSUP Form 1282 with explanatory notes are as follows.

Caption	Explanation
Document No	Assigned from Document No. Control Log, i.e., G-0001 (Galley), VP-0001 (Veg Prep), BA-0001 (Bake Shop), BU-0001 (Butcher Shop)
Requisitioned by	Watch captain, vegetable preparation supervisor, bake shop supervisor, butcher shop supervisor
Date for consumption	Actual date material will be used
Approved by	Senior MS on duty
Food Item Code	Taken from NAVFSSONOTE 7330 series (Fixed Price List)
Description of material	Self-explanatory
U/I	Self-explanatory
Quantity requested	Completed by watch captain work center supervisor
Quantity issued	Completed by issue room storekeeper
Quantity returned	Completed by issue room storekeeper
Net issue	Completed by issue room storekeeper
Unit price	Completed by records keeper
Value	Completed by records keeper
Issued by	Signed by issue room storekeeper at time of issue
First received by	Area supervisor at time of receipt
Returned by	Watch captain-area supervisor at time of turn-in
Second received by	Issue room storekeeper at time of receipt of turn-in
Certification	Food service officer will review completed issue document and certify that the food items issued support the menu of that day
Signature/date	Food service officer after review
Posted to	Self-explanatory

Figure 5-2.—Preparation explanation notes and the Food-Item Request/Issue Document, NAVSUP Form 1282.

quantities furnished, and delivers the items to the senior MS on duty. The jack-of-the-dust and the individual accepting the material sign in the ISSUED BY and RECEIVED BY blocks respectively.

RETURN OF FOOD ITEMS.—Strict accountability must be exercised over food items at all times to minimize waste and to make sure that items are used for the purpose intended. Unused food items that are being returned must not be kept in the galley. These items (often referred to as breakbacks or returns) must be promptly returned to the storeroom so that accountability can be reestablished. Returns may be made on the original issue document, NAVSUP Form 1282. This form is signed in the ISSUED BY block by the senior MS on duty and in the RECEIVED BY block by the jack-of-the-dust.

DOCUMENT DISTRIBUTION AND POSTING.—The jack-of-the-dust retains one copy of the issue document for posting to the NAVSUP Form 209 or NAVSUP Form 335 and then delivers the original and the remaining copy to the GM recordskeeper.

Issues From Combined Bulk and Issue Storerooms

On some ships, the bulk storeroom storekeeper is accountable for both the bulk and issue storerooms. Under this type of combined operation, the issue room becomes an extension of the bulk storeroom for accountability purposes. Thus, the same issue documents may be used for breakouts from the bulk storeroom to the galley and for reporting issues to the GM drawn from the issue room. When you are using this

procedure, only items for immediate use are to be requested from the bulk storeroom or drawn from the issue room. Care must be taken to make sure no excesses are drawn and stored in the galley causing the issues to the GM to be overstated. Any food items remaining in the issue room under the combined accountability procedure must be counted and reported with the bulk storeroom items when inventory is taken.

RETURNS OR TURN-INS.—Unprepared food items remaining in the galley after completion of meal periods in which the items were intended to be used must be returned to the storeroom on a daily basis. The NAVSUP Form 1282 containing daily issues must be modified to document items and quantities returned and thereby show the new issues to the GM. Procedures for turn-ins are the same as explained earlier under Issue Storeroom to Galley Procedures.

DOCUMENT DISTRIBUTION AND POSTING.—The bulk storeroom storekeeper retains one copy of the issue document for posting to the NAVSUP Form 209 or the NAVSUP Form 335 and then delivers the original and the remaining copy to the GM recordskeeper.

TRANSFERS

Occasionally, the need to transfer food items between GMs is necessary. You may be told by the leading MS or FSO to estimate the quantities of the requested food items that may be spared for transfer to another GM. In reviewing your stocks of the requested items, you should make a complete check against the planned menu and consider the length of time before replenishment of the requested food items. Then, you should make your recommendation. This recommendation should not jeopardize the operating capability of your GM.

Transfer Documents

Transfers of food items between ships and GMs ashore must be covered by a Requisition and Invoice/Shipping Document, DD Form 1149, or a DOD Single Line Item Requisition System Document (Manual), DD Form 1348m, or some other document required by the transferring activity. These documents must be prepared with an original and five copies.

Distribution and Posting

Three copies of the transfer document are distributed to the receiving activity and three copies are kept at the transferring activity. The subsistence bulk storeroom storekeeper posts issues to either the NAVSUP Form 209s or the NAVSUP Form 335s in the OTHER column and then gives the copies to the GM recordskeeper.

SALE OF FOOD ITEMS

Food items may be sold to private messes afloat and Navy/Marine Corps officer and enlisted clubs ashore if approved by the commanding officer.

Ashore Private Messes

The sale document—NAVSUP Form 1059 or DD Form 1149 or NAVSUP Form 1282—is forwarded to the FSO for issue.

Posting

The quantity of each item must be posted to the OTHER column of either the NAVSUP Form 209 or the NAVSUP Form 335 by the subsistence bulk storeroom storekeeper or jack-of-the-dust. Then, this information is forwarded to the GM recordskeeper for completion of the posting and accounting processes.

Afloat Private Messes

The sale of food items to private messes afloat was explained in chapter 4 under Private Mess Procurement.

SURVEYS

The Navy term *survey* means the disposition of material after a loss situation has been investigated.

Purpose

The purpose is to expend from the records material that is damaged, obsolete, deteriorated, lost, or stolen. The purpose also includes a review of the existing condition of the material, the cause and responsibility for this condition, and the recommendation for the final disposition of the material.

Document

The document used depends on the reason for the survey. Refer to *Navy Foodservice Management*, NAVSUP P-486, volume I, chapter 6, for guidance on document preparation and usage.

Loss Without Survey

Food items accounted for in appropriations, Military Personnel, Navy, may be expended without a Report of Survey, DD Form 200, when culpable responsibility is not involved and in either of the following instances:

1. Material is short or lost in shipment, and the value of the loss is less than $10 per line item.
2. Food items are lost as a result of physical deterioration, veterinary sampling, damage in handling, fire, water, or similar circumstances, and the value of the loss is $50 or less per line item. When the total loss of several items expended for the same reason—replenishment evolution, periodic shelf-life review, flood, fire, and so forth—exceed $150, a DD Form 200 will be completed as required. Figure 5-3 shows a NAVSUP Form 1334 used to expend food items in such a manner.

Repetitive entries of the same item for the purpose of circumventing maximum dollar limitations will not be allowed.

INVENTORY

Inventory is conducted in the general mess on a quarterly basis. Special inventories are conducted as required. The types of inventories and the inventory requirements are explained next.

REQUIREMENTS

GM food items must be inventoried by the FSO as of the last day of each quarter and before

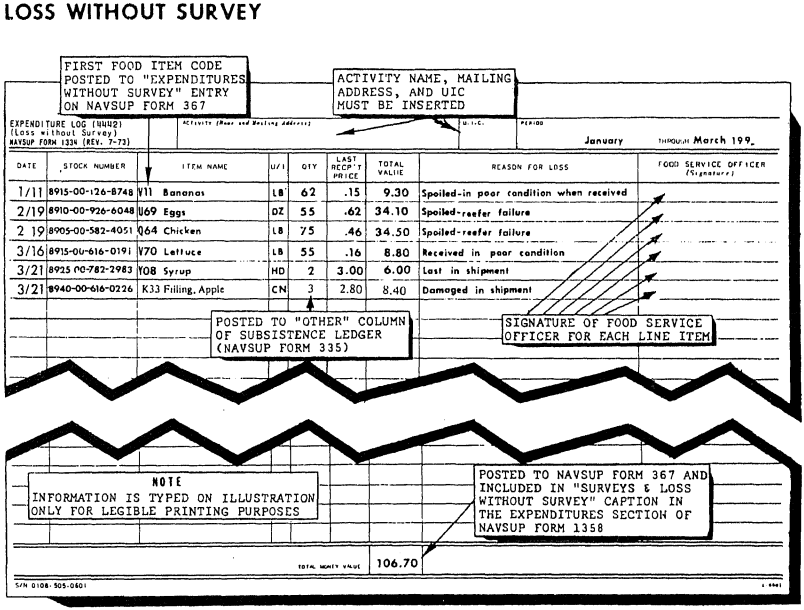

LOSS WITHOUT SURVEY
FIRST FOOD ITEM CODE POSTED TO "EXPENDITURES WITHOUT SURVEY" ENTRY ON NAVSUP FORM 367
ACTIVITY NAME, MAILING ADDRESS, AND UIC MUST BE INSERTED
EXPENDITURE LOG (NWU2) (Loss without Survey) NAVSUP FORM 1334 (REV. 7-73)
Activity (Name and Mailing address)
U.I.C.
PERIOD
January
THROUGH March 19_
DATE
STOCK NUMBER
ITEM NAME
U/I
QTY
LAST RECP'T PRICE
TOTAL VALUE
REASON FOR LOSS
FOOD SERVICE OFFICER (Signature)
1/11 8915-00-126-8748 V11 Bananas LB 62 .15 9.30 Spoiled-in poor condition when received
2/19 8910-00-926-6048 U69 Eggs DZ 55 .62 34.10 Spoiled-reefer failure
2 19 8905-00-582-4051 Q64 Chicken LB 75 .46 34.50 Spoiled-reefer failure
3/16 8915-00-616-0191 V70 Lettuce LB 55 .16 8.80 Received in poor condition
3/21 8925 00-782-2983 Y08 Syrup HD 2 3.00 6.00 Lost in shipment
3/21 8940-00-616-0226 K33 Filling, Apple CN 3 2.80 8.40 Damaged in shipment
POSTED TO "OTHER" COLUMN OF SUBSISTENCE LEDGER (NAVSUP FORM 335)
SIGNATURE OF FOOD SERVICE OFFICER FOR EACH LINE ITEM
NOTE
INFORMATION IS TYPED ON ILLUSTRATION ONLY FOR LEGIBLE PRINTING PURPOSES
POSTED TO NAVSUP FORM 367 AND INCLUDED IN "SURVEYS & LOSS WITHOUT SURVEY" CAPTION IN THE EXPENDITURES SECTION OF NAVSUP FORM 1358
TOTAL MONEY VALUE
106.70
S/N 0108-505-0601

Figure 5-3.—Expenditure log (loss without survey).

- At the end of each patrol period of fleet ballistic submarines, and upon relief of either the blue or the gold crew.

- Aboard ships without Supply Corps officers, an inventory must be taken before the relief of the commanding officer if an accountable FSO has not been named.

TYPES

As a MS3, you will often be directed to conduct a variety of inventories, some of which may be quite unfamiliar to you. Listed below are short explanations of some of the common inventories held.

QUARTERLY INVENTORY—This inventory is required in all GMs at the end of each quarter.

OPTIONAL INVENTORY—In the interest of reducing the workload for the quarterly inventory, this type of inventory may be taken at any time during the last month of the quarter.

SPOT INVENTORY—This type involves frequent counting of a small number of fast-moving, high-cost items.

RELIEF OF ACCOUNTABLE OFFICER—When the FSO is relieved, a complete inventory is taken to establish the new FSO's accountability.

PREPARATION FOR INVENTORY

In preparation for the inventory, all receipts and expenditure documents should be posted to the Stock Tally Card, NAVSUP Form 209; the Subsistence Ledger, NAVSUP Form 335; and the Record of Receipts and Expenditures, NAVSUP Form 367. All GM food items should be arranged by case lots with labels facing out and in NAVSUP Form 1059 sequence, if possible.

PHYSICAL INVENTORY

When the FSO is being relieved, both the present and the relieving FSOs should take the inventory. Personnel assigned responsibility for GM stock should be present and participate in the inventory of their respective spaces. Separate should not be moved from one storage area to another during the inventory. The FSO should make sure that no issue, transfer, or sale of food items is made from GM stocks except in an emergency. When such expenditures occur, the inventory should be adjusted and initialed by the persons taking the inventory.

Recording the Inventory Counts

The rough inventory should be recorded on NAVSUP Form 1059 or other appropriate recording document. Regardless of the form used, the rough inventory must be recorded in ink. Only an original rough inventory will be prepared. Errors and adjustments should be lined out, but not obliterated. Corrections must be initialed by the persons responsible for the inventory. Each page of the rough inventory must be signed by the FSO and the persons responsible for the storage areas.

After Inventory

The rough inventory should be compared with the balances on the NAVSUP Form 335. A list should be made of discrepancies between inventory quantities and on-hand balances and these discrepancies should be investigated immediately. Required corrections should be made and initialed by each person whose name appears on the inventory sheets. After all the corrections have been made, the inventory should be recapped in duplicate on a NAVSUP Form 1059. The FSO should compare the smooth recapped inventory with the rough inventory before signing the smooth inventory. The rough inventory sheets should be placed in the accountability file until the next inventory has been completed, after which they may be destroyed. The original and duplicate of the smooth inventory should be priced at the last receipt prices, extended and totaled. The original should be retained by the FSO and filed with the retained returns.

The duplicate copy should be used for posting to the NAVSUP Form 209s, 335s, and 367s. Inventory quantities should be posted to the NAVSUP Form 209 and NAVSUP Form 335. The total value of the inventory should be posted to the EXPENDITURES side of the NAVSUP Form 367. After posting is completed, the duplicate copy should be used to prepare returns and then destroyed except for a copy to be retained by the relieving accountable officer. Figure 5-4 illustrates a smooth inventory.

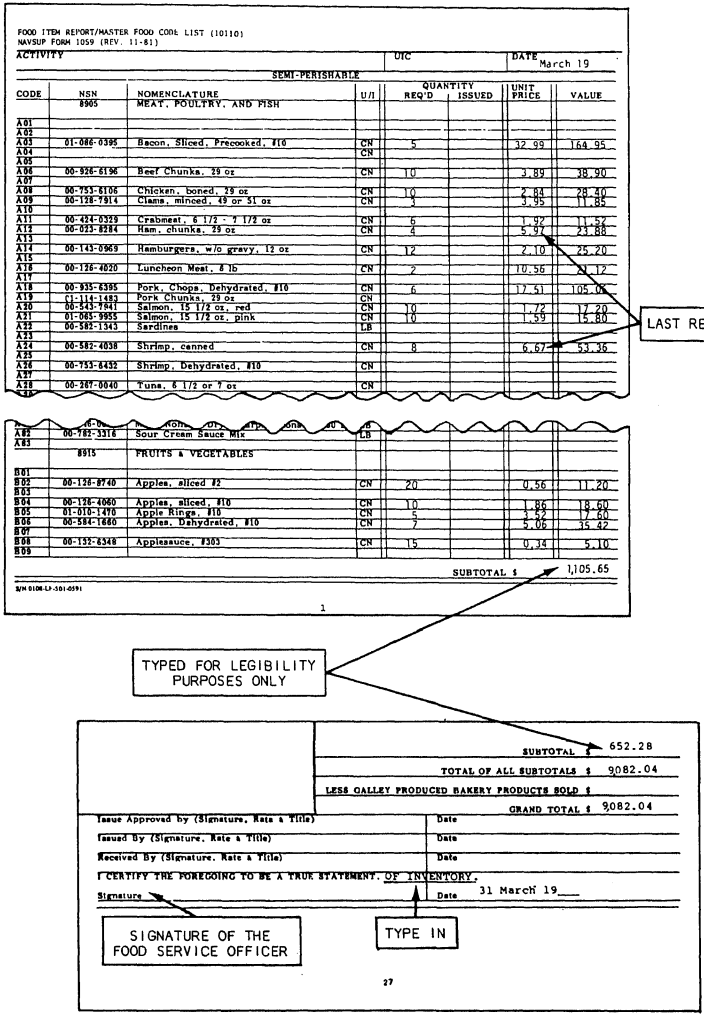

FOOD ITEM REPORT/MASTER FOOD CODE LIST (10110)
NAVSUP FORM 1059 (REV. 11-81)
ACTIVITY
UIC
DATE March 19
SEMI-PERISHABLE
CODE
NSN
NOMENCLATURE
U/I
QUANTITY REQ'D
QUANTITY ISSUED
UNIT PRICE
VALUE
8905
MEAT, POULTRY, AND FISH
A03 01-086-0395 Bacon, Sliced, Precooked, #10 CN 5 32.99 164.95
A06 00-926-6196 Beef Chunks, 29 oz CN 10 3.89 38.90
A08 00-753-6106 Chicken, boned, 29 oz CN 10 2.84 28.40
A09 00-128-7914 Clams, minced, 49 or 51 oz CN 3 3.95 11.85
A11 00-424-0329 Crabmeat, 6 1/2 - 7 1/2 oz CN 6 1.92 11.52
A12 00-023-8284 Ham, chunks, 29 oz CN 4 5.97 23.88
A14 00-143-0969 Hamburgers, w/o gravy, 12 oz CN 12 2.10 25.20
A16 00-126-4020 Luncheon Meat, 6 lb CN 2 10.56 21.12
A18 00-935-6395 Pork, Chops, Dehydrated, #10 CN 6 17.51 105.06
A19 01-114-1483 Pork Chunks, 29 oz CN
A20 00-543-7941 Salmon, 15 1/2 oz, red CN 10 1.72 17.20
A21 01-065-9955 Salmon, 15 1/2 oz, pink CN 10 1.59 15.80
A22 00-582-1343 Sardines LB
A24 00-582-4038 Shrimp, canned CN 8 6.67 53.36
A26 00-753-8432 Shrimp, Dehydrated, #10 CN
A28 00-267-0040 Tuna, 6 1/2 or 7 oz CN
LAST RECEIPT PRICES
A02 00-782-3316 Sour Cream Sauce Mix LB
8915
FRUITS & VEGETABLES
B02 00-126-8740 Apples, sliced #2 CN 20 0.56 11.20
B04 00-126-4060 Apples, sliced, #10 CN 10 1.86 18.60
B05 01-010-1470 Apple Rings, #10 CN 5 3.52 17.60
B06 00-584-1660 Apples, Dehydrated, #10 CN 7 5.06 35.42
B08 00-152-6348 Applesauce, #303 CN 15 0.34 5.10
SUBTOTAL $ 1,105.65
S/N 0108-LF-501-0591
1
TYPED FOR LEGIBILITY PURPOSES ONLY
SUBTOTAL $ 652.28
TOTAL OF ALL SUBTOTALS $ 9,082.04
LESS GALLEY PRODUCED BAKERY PRODUCTS SOLD $
GRAND TOTAL $ 9,082.04
Issue Approved by (Signature, Rate & Title) Date
Issued By (Signature, Rate & Title) Date
Received By (Signature, Rate & Title) Date
I CERTIFY THE FOREGOING TO BE A TRUE STATEMENT OF INVENTORY.
Signature Date 31 March 19___
SIGNATURE OF THE FOOD SERVICE OFFICER
TYPE IN
27

Figure 5-4.—Smooth inventory.

OPTIONAL INVENTORY POSTING PROCEDURE

Upon completion of the inventory, quantities on hand are posted to the Subsistence Ledger, NAVSUP Form 335. Quantity differences (either plus or minus) between the inventory and the NAVSUP Form 335 balances are posted to the ISSUED TO GENERAL MESS column of the NAVSUP Form 335 and to the Food Item Report/Master Food Code List, NAVSUP Form 1059, or Food-Item Request/Issue Document, NAVSUP Form 1282, on which each item is priced using fixed prices, extended, and totaled. The total value of the differences is posted to the General Mess Control Record, NAVSUP Form 338, to reflect the actual food cost.

At the end of the quarter, the quantities on hand, as shown on the NAVSUP Form 335s, are posted to the NAVSUP Form 1059. These forms should be priced at last receipt prices, extended, totaled, and signed by the FSO. The value is posted to the Record of Receipts and Expenditures, NAVSUP Form 367, as the value of subsistence inventory carried forward at the end of the accounting period and is reported under EXPENDITURES in the BALANCE SHEET section of the General Mess Operating Statement, NAVSUP Form 1358, opposite the caption BALANCE ON HAND.

CHAPTER 6

FOODSERVICE EQUIPMENT

The foodservice equipment located in the galley and dining areas at naval shore stations and aboard Navy ships is designed specifically for serving large quantities of food. To ensure the safe, sanitary, and efficient operation of this equipment, it must be maintained in proper working order and used correctly.

OPERATION OF VARIOUS EQUIPMENT

Foodservice equipment is used for the cooking and preparation of food and the cleaning of utensils and dinnerware. This consists of all equipment located in such foodservice spaces as the general mess galley, bakeshop, meat preparation room, private mess galleys, dining areas, and sculleries.

Numerous items of foodservice equipment (such as vegetable peelers, meat choppers, dough mixers, and refrigerators) are either driven by electric motors or are heated electrically (such as ranges, broilers, griddles, and fry kettles). Safety precautions must be observed around all electrical equipment to avoid injury from shock. Major cleaning requires the equipments to be tagged out according to the tag-out bill.

Negligence in carrying out routine operating instructions and preventive maintenance introduces an undue health hazard among the people served. Therefore, it is vital that correct operating procedures be followed, that a cleaning schedule be carefully adhered to, and that the machines be given adequate preventive maintenance to ensure satisfactory cleaning and sanitizing of eating utensils.

BASIC FOOD PREPARATION EQUIPMENT

This equipment is used for basic food preparation. Equipment that is designed for one specific purpose, such as the dough mixer used only in the mixing of bread ingredients, is discussed later in this chapter.

GENERAL PRECAUTIONS

Before attempting to operate foodservice equipment, the following general precautions must be observed:

- Check for and determine the location of emergency materials such as fire extinguishers, first aid boxes, and telephone emergency numbers to ensure their availability should an accident occur. Report any deficiencies or malfunctioning materials to the supervisor.

- Make sure that the area around the equipment is clear of obstructions and thoroughly dry. All spills must be cleaned up immediately to ensure a clean, dry, nonslippery working surface.

- Make sure that the working area has ample lighting.

- If there is any doubt about the operating procedure or safety precautions, report to the supervisor.

- No unauthorized personnel should attempt to operate equipment in any foodservice space.

- Be certain no loose gear is in the vicinity of moving parts of machines. Before starting, you should make sure that all safety guards, screens, and devices are in place.

- When you are operating a machine, maintain a safe distance from all moving parts. NEVER USE YOUR HANDS OR BODY TO STOP MOVING BLADES AND PARTS EVEN THOUGH POWER HAS BEEN TURNED OFF.

- Never lean against a machine while it is operating.

- If ship movement is severe, exercise caution; if severe movement continues, nonessential machine operation should be discontinued and equipment turned off.

- Use safety equipment such as rubber protective gloves, safety glasses, dip baskets, and so forth, while handling chemicals or hot water.

- KEEP YOUR HANDS, BODY, AND CLOTHING AWAY FROM MOVING MACHINE PARTS.

- NEVER LEAVE MOVING MACHINERY UNATTENDED.

- Do not distract the attention of personnel who are operating machines.

- DO NOT ATTEMPT TO CLEAN OR SERVICE A MACHINE WHILE IT IS IN OPERATION. Before cleaning, adjusting, oiling, greasing, and so forth, you should be sure the power is turned off and the equipment is deenergized and tagged.

- All repairs and servicing should be made only by authorized personnel.

- Make sure safety devices such as safety interlocks on covers of vegetable peelers and bread slicer safety cutoffs are maintained in proper working condition at all times. If removed for any reason, such devices must be replaced before the machine is put into operation.

- Remove rings and watches and eliminate any loose clothing such as rolled-up sleeve cuffs, oversized gloves, and ill-fitting coats or jackets.

- All permanently mounted equipment should be hardwired.

Steam-Jacketed Kettle

vegetables, meats, and beverages. This equipment is very important and should be handled with great care (see fig. 6-1). The kettles vary in size from 5 to 80 gallons. Approximately the lower two-thirds of each kettle is surrounded by a jacket that is offset from the main kettle body to provide space for steam to circulate and heat the contents of the kettle. The kettles are permanently mounted on a pedestal or three legs and have a hinged lid or cover. They also have a tube at the bottom of the kettle with a faucet at the outer end for drawing liquids instead of dipping them out, and a steam inlet connection, a steam outlet connection, and a safety valve. Some steam-jacketed kettles (or trunnions) have a handle on the side making it possible to tilt the kettle and pour contents into a service container. This type of kettle is usually used to prepare gravies and sauces. Kettles now in use are made of three types of material—corrosion-resisting steel, aluminum, and single clad corrosion-resisting steel.

Never fill the kettle completely full. If it is necessary to stir the contents, use a metal paddle; never leave the paddle in the kettle while cooking.

OPERATION.—The kettles are constructed to operate on a maximum steam pressure of 45 psi. When the pressure in the galley steam line is in excess of 45 psi, a pressure regulating valve (safety valve) that is installed in the steam line leading to the kettles is set to blow off at 45 pounds of pressure. Do not tamper with the safety valve or tie it closed. It is there to prevent the kettle from exploding. When you heat a cold kettle, turn the steam on gradually, allowing the shell to become thoroughly warm before full pressure is applied. After the shells have become warm, and before applying full pressure, open the safety valve by pulling the lever. Opening the safety valve while the pressure is within the shell removes air from within the jacket and prevents the kettle from becoming air bound.

CLEANING.—Kettles (or coppers) should be cleaned after each use. General cleaning instructions are as follows:

48.18

Figure 6-1.—Steam-jacketed kettles.

2. Soak. Close drain valve. Fill with water above cooking level. If greasy, apply heat. If eggs were cooked, leave water cold. Use a scrub brush to loosen food particles. Drain soaking water.

3. Refill and clean. Add detergent, using 1 ounce to 1 gallon of water. Clean interior, hinges, under surfaces of lids, and frame with brush. Drain. Flush out.

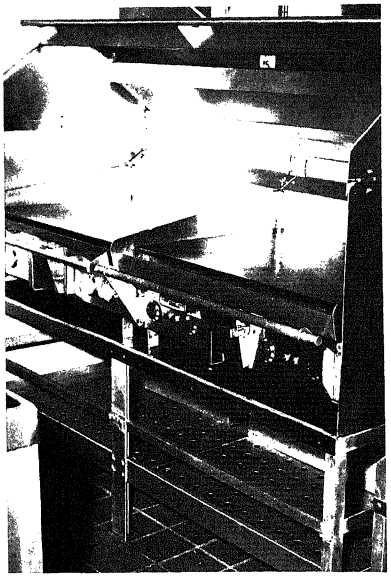
4. Remove drain-off faucet fittings and disassemble drain line. Scrub drawoff faucet and fittings with a flexible-handled brush. Pull back and forth through tube under running hot water. Thoroughly clean in detergent water. Rinse with 180 °F water to sanitize. Drain valves and tubing should also be cleaned and sanitized in a similar way.

5. Scrub exterior and frame. Use hot detergent water and brush.

6. Resterilize interior. Before using kettle, you should rinse with 180 °F water.

NOTE: The above procedure is recommended for stainless steel kettles. If metals are aluminum, brightening or whitening is required. Boil with vinegar water for a short time period or use products recommended for cleaning aluminum following manufacturer's directions. Do not use caustic cleaners or steel pads. If kettles are stainless steel, clean as directed earlier.

SAFETY NOTE: Determine that the safety valve is in proper working order before using kettle.



48.10

Figure 6-2.—Electric griddle.

Griddle

The griddle (fig. 6-2) consists of cooking surfaces of various sizes up to 34 inches deep by 72 inches wide. Each has a readily removable grease receptacle in the front of the griddle and a splash guard at least 3 inches high at the rear of the griddle which is tapered at the sides. All thermostat dial knobs are conveniently located on the front panel. Each thermostat dial knob has a signal light that indicates the griddle is turned on. The light will remain on until the griddle has reached the dialed temperature.

OPERATION.—To operate an electric griddle, proceed as follows:

1. Carefully read the operating and safety instructions posted near the griddle.
2. Preheat griddle by turning the thermostat dial knob to the recommended preheating temperature according to the manufacturer's
3. Set the thermostat dial knobs at the desired temperature listed on the recipe card of the food to be griddled. A red light will flash on automatically when the griddle dial is set and will flash off when the griddle has reached the dialed temperature. The signal light will flash on and off during the cooking process to show the correct temperature is being maintained. You are now ready to load the griddle.
4. Turn the griddle off or to lowest temperature setting during idle periods.

CARE AND CLEANING.—Keep the cooking surface scraped and wiped clean at all times. The grease gutters should always be kept clean to facilitate draining off excess grease and thereby reducing smoke. The grease receptacle should be emptied frequently and thoroughly cleaned at the end of the working day.

Before starting the griddle cleaning procedure, always make sure the electrical power is turned off at the main power panel and the correct tag-out procedures have been followed.

The cooking surface of most griddles can be satisfactorily cleaned with a pumice stone (or griddle stone); however, before cleaning, you should read the food service officer's cleaning instructions that normally list the manufacturer's recommended cleaning instructions for that particular griddle surface.

After each thorough cleaning, the griddle should be seasoned. Seasoning is done by preheating the griddle to 400 °F. When the signal light goes off, spread a light film of cooking oil or fat over the entire surface of the griddle. In 2 minutes, wipe the surface clean of excess oil. Repeat this operation. The griddle is now ready for use.

Deep-Fat Fryer

Sizes of deep-fat fryers (fig. 6-3) are expressed in the number of pounds of french fries that can be cooked in an hour ranging from 30 to 125 pounds. Some deep-fat fryers are manually loaded. Others have automatic lowering and raising capabilities controlled by a timer.

OPERATION.—Before filling the deep-fat fryer always check three things:

1. Master switch must be in the OFF position.
2. Thermostatic switch must be in the OFF position.

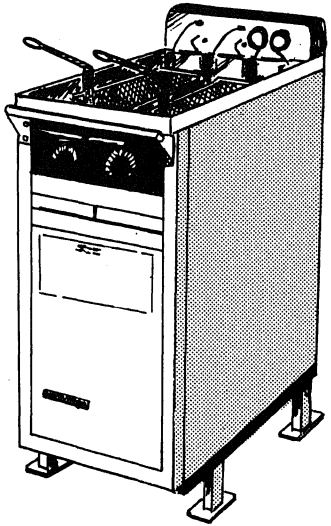


Figure 6-3.—Deep-fat fryer.

Fill the fryer with fat using the amount specified in the technical manual furnished with the fryer. Fats should be kept at least 2 inches below the fryer top. If possible, the fat should be heated and melted before placing it in the fry kettle. Cold solid fat may have moisture pockets that will explode, casting hot melted fat over a wide area. Temperature should be no more than 200 °F while the fat is melting. Also, if the cold fat is not uniformly distributed around the heating element, the bare portions may heat up to a point where a sudden splash of fat on the ovenheated element will cause the fat to ignite. The fat should cover the uppermost coil at all times when the deep-fat fryer is in operation so as not to overheat the element and cause a fire. After the fat has been added, operate the deep-fat fryer as follows:

1. Turn on the master switch located outside the galley.
2. Set the thermostat at the cooking temperature prescribed in the *Armed Forces Recipe Service* (AFRS) for the recipe you are using.
3. Check the temperature of the fat with a hand thermometer frequently during the cooking process. Compare this hand reading with the thermostat reading to determine if the thermostat is accurate. The temperature should never, under any circumstances, go above 400 °F. A safety requirement on all Navy fryers includes a second or overtemperature thermostat. This is a nonadjustable, manual, resetting type installed to limit maximum temperature to 460 °F. In case of failure of the adjustable automatic thermostat, the overtemperature thermostat disconnects the electric power to the heater elements.
4. Have foods as free from moisture as possible before frying. Excess moisture causes the fat to foam, sputter, and boil over. It also causes fats to break down, and their useful life is shortened.
5. Do not fry bacon in the deep-fat fryer, as the fat from the bacon causes the fat level to rise above the safe level. It also contains salt that will shorten the life of the fat.
6. Follow instructions furnished with the fryer. Do not exceed the capacity of the fryer indicated on the instruction plate.
7. NEVER let the fat level fall below the point marked in the fat container, and NEVER leave the deep-fat fryer unattended while in use.
8. In the event a fire should occur in the deep-fat fryer, do not attempt to smother the fire with a cover of any sort. Call the emergency number for reporting a fire at your command and shut off the electrical source (that is, the main power switch outside the space) to the fryer. If the fryer is provided with automatic fire extinguishing and does not set off automatically, pull the manual release. If that does not function, use PKP portable extinguishers.

NOTE: Under any circumstances, do NOT use water to extinguish the fire.

CLEANING THE DEEP-FAT FRYER.—Each fryer should be cleaned after each use. Before you clean the deep-fat fryer, turn off the heating element and allow the fat to cool to about 150 °F. Drain the fat out of the fryer. Then remove the basket support screen, scrape off oxidized fat from the sides of the kettle with a spatula or scraper, and flush down the sediment with a small amount of fat. If the kettle has become very dirty, fill it to the fat level with hot water containing dishwashing machine detergent. Turn on the heating element and allow the water to come to a boil. Boil the water for at least 5 to 10 minutes, turn off the heating element, drain, rinse with warm vinegar water, then rinse thoroughly with

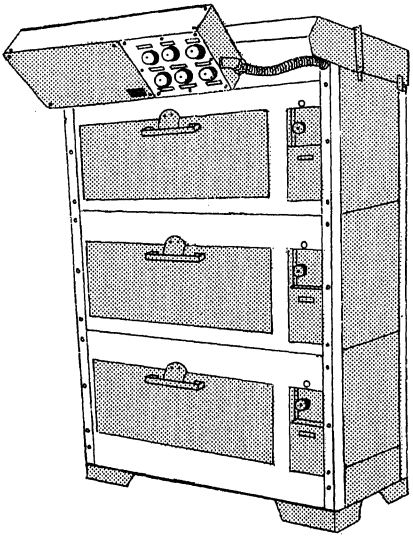


Figure 6-4.—Electric oven.

clear water, and dry the fryer well. Clean the outside of the fry kettle with a grease solvent. DO NOT leave heating elements turned on when the deep-fat fryer is empty. This will burn out the heating element.

Ovens

The number and kinds of ovens found on ships and stations are determined by galley size and number of people being fed.

ROASTING AND BAKING OVEN.—Electric roasting and baking ovens (fig. 6-4) have two to six compartments with two heating units in each compartment, one located in the top of the compartment and one located below the bottom deck of the compartment.

Operating Instructions.—The oven should be preheated before it is used by turning both upper and lower units to high until the desired temperature is reached. Then, the thermostat control will automatically cut off the current and

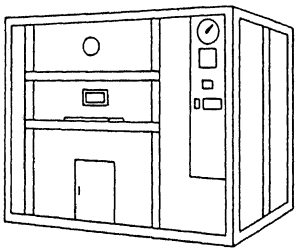


Figure 6-5.—Rotary oven.

top and bottom heat necessary to bake the product. In roasting meat, avoid spilling grease on the heating elements or thermostats, as damage to this equipment may result.

Care of Roasting/Baking Ovens.—To prevent the accumulation of foreign material, you should clean the oven thoroughly at least once a week in addition to the normal daily cleaning. Keep door edges clean. Crusty deposits prevent proper closing of doors causing not only loss of heat but also corrosion by the escape of steam and fumes. Use the damper lever (located above the thermostat) to prevent smoke and steam from escaping around the oven door. Do not throw water in the oven to cool or wash. Always follow established tag-out procedures before cleaning ovens.

ROTARY OVEN.—Rotary ovens (fig. 6-5) are found at shore station galleys and bakeshops. They may be heated by either electric or gas. Rotary ovens have revolving trays that create air movement making them ideal for baking and roasting.

One of the first things you should do when assigned to operate a rotary oven is to read the operating and cleaning instructions posted on the oven. Since some of the rotary ovens are gas, foreign matter should not be allowed to accumulate to prevent a possible oven fire.

CONVECTION OVEN.—A convection oven (fig. 6-6) has a blower fan that circulates hot air throughout the oven, eliminating cold spots and

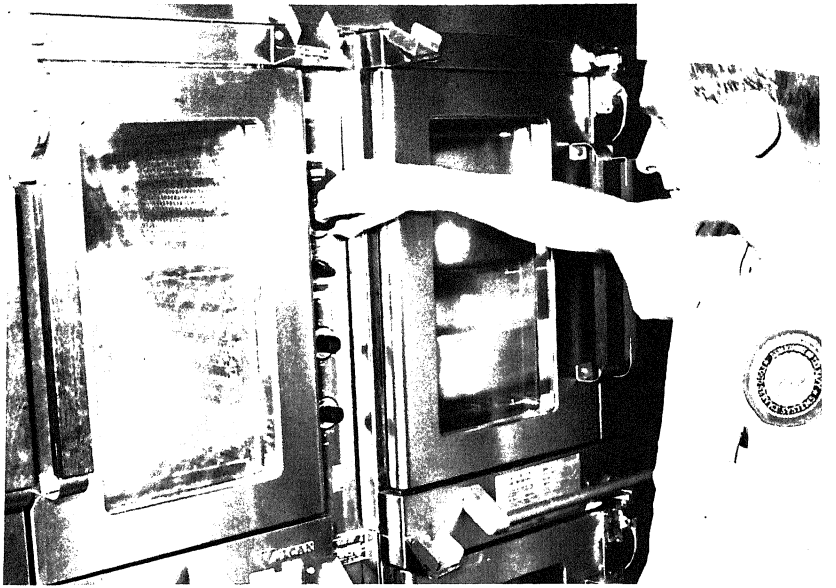


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Figure 6-6.—Convection oven.

ovens. The size, thickness, type of food, and the amount loaded into the oven at one time will influence the cooking time.

Temperature Settings.—Follow the recommended temperature guidelines provided either in the manufacturer's operating manual or follow the guidelines furnished in the AFRS, NAVSUP P-7, or reduce the temperatures specified on the recipe cards by 50 °F. If food is cooked around the edges, but the center is still raw or not thoroughly cooked, or if there is too much color variation (some is normal), reduce the heat by 15 ° to 25 °F and return food to the oven. If necessary, continue to reduce the heat on successive loads until the desired results are achieved. Record the most successful temperature on the recipe card for future reference.

Time Settings.—Follow the recommended times provided in the manufacturer's operating manual, or follow the guidelines in the AFRS, NAVSUP P-7. Check progress halfway through the cooking cycle since time will vary with the quality of food loaded, the temperature, and the type of pan used. Remember, the use of meat thermometers for roasting and the visual examination of baked products are the most accurate methods of determining the desired cooking times, both in convection and conventional ovens.

Vent Damper Control Setting.—The vent damper control is located on or near the control panel. The damper should be kept closed for most foods of low moisture content such as roasts. Leaving the vent open during roasting will produce a dry meat and result in excessive shrinkage.

The damper should be kept open when baking items with high moisture content (cakes, muffins, yeast bread, and so forth). Leaving the damper

closed throughout a baking cycle will produce cakes that are too moist and ones that will not rise. A "cloud" of water droplets on the oven window indicates excessive moisture that should be vented out of the oven through the open damper.

Interior Oven Lights.—Turn on lights only when loading, unloading, or checking the product. The continual burning of lights will result in short bulb life.

Timer.—The oven timer will ring only as a reminder; it has no control over the functioning of the oven. To ensure proper operation, you should wind the timer to the maximum setting, then turn it back to the setting desired for the particular product.

General Operation of Convection Ovens.—The general operating procedures for convection ovens are as follows:

1. Select and make the proper rack arrangement for the product to be cooked.
2. Turn or push the main power switch ON (gas oven—turn burner valve ON). Set the thermostat to the recommended temperature. The thermostat signal light will light when the power goes on. If possible, adjust the fan speed on the two-speed blower.
3. PREHEAT oven until the thermostat signal light goes out indicating that the oven has reached the desired temperature. The oven should preheat to 350°F within 10 to 15 minutes. (NOTE: To conserve energy, do not turn on the oven until absolutely necessary—approximately 15 minutes before actual cooking is to start.)
4. OPEN the oven doors and load the oven quickly to prevent excessive loss of heat. Load the oven from the top, centering the pans on the rack toward the front of the oven. Place partial loads in the center of the oven. Allow 1 to 2 inches of space between the pans and along the oven sides to permit good air circulation. Remember—overloading is the major cause of nonuniform baking and roasting.
5. Close the oven doors and set the timer for the desired cooking time. Check the baking/roasting periodically until the product is ready for removal.

Care and Cleaning.—Keep the insides of the oven and racks clean. If food particles or carbon properly. Poorly closed doors permit a constant escape of steam and vapor around the door. The vapor will condense and deteriorate the finish around the oven front and door lining.

The rule for all electrical appliances is to make sure that the proper tag-out procedures have been followed.

When cleaning the interior of the oven, it is important to bear in mind that the aluminum coating, though tightly adherent, is still a coating. To preserve the coating and to make the maintenance easier, clean the interior often when the oven is cold with mild detergent or soap and water. This will prevent food and dirt from "baking on" and will frequently be all the cleaning that is necessary.

If soil resists soap and water cleaning, use a wooden tool to loosen spillage from the cold oven. Follow with a nonetching cleaner that is specifically recommended for aluminized steel. Use clear water to rinse; dry with a soft clean cloth. AVOID USING WIRE BRUSHES and CAUSTIC SOLUTIONS such as lye, soda ash, or ammonia.

- When the oven liner features stainless steel the following rules apply:

In general, the principles detailed above apply. Soap or detergent and water will usually take care of routine cleaning. Drying should be done with a soft clean cloth.

For burnt-on foods and grease that resist simple soap and water cleaning, an abrasive cleaner mixed into a paste may be employed. Apply with a sponge, always rubbing with the grain. This treatment is usually effective for heat tint (slightly darkened areas caused by oxidation). Again, remember to rub in the direction of the polish lines. Rinse with clear water and dry with a soft cloth.

- When Teflon panels are featured the following rules apply:

To protect the easy-care properties of Teflon-coated oven panels, frequent cleaning, dependent on oven usage, is recommended. Panels should be cleaned as soon as soil begins to turn brown. This will minimize the possibility of Teflon discoloration. Do not use sharp instruments, abrasive materials, or oven cleaners on a Teflon surface, otherwise the warranty is void. Should the surface be accidently scratched, the

To clean the Teflon panels, remove panels and wash thoroughly with hot sudsy water using a sponge or web pad which is supplied with the oven. Do not use harsh abrasives. Rinse well and dry. Between these cleanings, everyday oven spatters can be easily sponged off with a sudsy sponge or a cloth, rinsed, and dried. With Teflon, there is never a need for oven cleaner. The step-by-step sequence for removing panels is as follows:

1. Remove tray racks by pulling straight out.
2. Remove right and left rack guides by lifting straight out.
3. Right- and left-hand panels may now be removed by moving toward the center and pulling out. To avoid scratching, do not rest panels on bottom panel.
4. Remove bottom panel by pulling straight out.
5. Remove blower baffle by lifting straight up and pulling out toward the front. Care should be exercised to clear brackets on the side.
6. Blower wheel can now be cleaned in place.
7. Top panel and interior door panels can be cleaned while in place.
8. If removal of top panel is desired, unscrew three screws from the front top edge of top and two screws from rear flange of top.
9. Slide out toward front.

To reassemble, reverse the above procedure.

To keep the stainless steel front bright and gleaming at all times, just clean it regularly with a damp cloth and polish with a soft dry cloth. To remove discolorations that may have formed when regular cleaning was neglected, use any detergent or plain soap and water.

Wash all exterior surfaces daily. Use a cloth wet with warm water and a mild soap or detergent. Where surfaces have been polished, use a cloth lightly—hard rubbing will remove polish. Follow with a clean damp cloth, then dry. This simple beauty treatment not only keeps your equipment dirt-free and sparkling, but virtually eliminates the danger of grease accumulation that may form a hard-to-remove stain if left on too long. (NOTE: Do not sprinkle or pour water over oven as it may cause an electrical short.)

General Notes.—Most convection ovens are equipped with an electric interlock that energizes/de-energizes both the heating elements and the fan motor when the doors are closed/open. Therefore, the heating elements and fan will not operate independently and will only operate with the doors closed. Some convection ovens are equipped with single-speed fan motors while others are equipped with two-speed fan motors. This information is particularly important to note when baking cakes, muffins, meringue or custard pies, or similar products, and when oven-frying bacon. High-speed air circulation may cause damage to the food (for example, cakes slope to one side of the pan) or blow melted fat throughout the oven. Read the manufacturers' manuals and determine exactly what features you have and then, for the above products, proceed as follows:

- Two-speed interlocked fan motor: Set fan speed to low.

- Single-speed interlocked fan motor: Preheat oven 50 °F higher than the recommended cooking temperature. Load oven quickly, close doors, and reduce thermostat to recommended cooking temperature. (This action will allow the product to be baked to set up before the fan/heating elements come on again.)

- Single-speed independent fan motor: Preheat oven 25 °F above temperature specified in recipe. Turn fan off. Reduce heat 25 °F. Load oven quickly and close doors. Turn fan on after 7 to 10 minutes and keep on for remaining cooking time. (EXCEPTION: Leave fan off for bacon to eliminate fat from blowing throughout the oven.)

Read and understand the manufacturers' manuals. They will make your job easier and safer.

Ranges

Electric ranges are normally found in private messes, small ships, and submarines. Range descriptions and uses will now be explained.

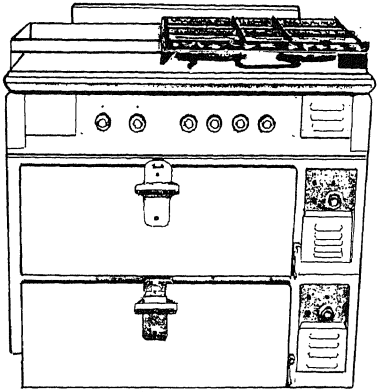

Figure 6-7.—Type S electric range.

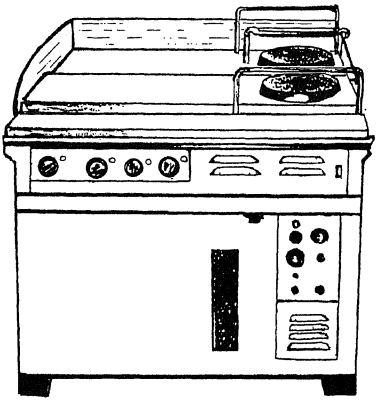

Figure 6-8.—Type C electric range.

TYPE S.—Type S (fig. 6-7) is found on submarines. The type S is a compact galley unit consisting of a griddle on the left side and hot plates on the right side. A two-compartment oven section makes up the body of the range. Dial temperature control knobs are mounted on the body directly adjacent to each section. The temperature control knobs for the ovens are located directly to the right of each oven compartment.

TYPE C.—Type C (fig. 6-8) is found on small ships and private messes where small galleys are found with limited space. This type of range consists of a griddle on the left side and hot plates on the right side with a single oven located in the body of the range. This type of range is also available with a single griddle top and single oven compartment. Dial temperature control knobs are mounted on the body directly adjacent to each section. Control knobs for the oven compartment are located to the right of the oven compartment.

OPERATION OF SURFACE UNITS.—When operating the surface unit, use the control knob or thermostat setting at maximum heat only to heat food to cooking temperature or to bring water to a boil, then reduce the control knob setting to the heat required by the food being cooked. Using more heat than necessary is not not in use. When steaming food, keep cooking utensils covered. The food will stick and burn if left uncovered and power will be wasted.

CARE AND CLEANING.—Keep the range surface units clean and avoid spilling grease under the edges of the hot plates. Remove and clean drip pans after each use.

To clean the surface units follow the cleaning procedures used for griddles and the manufacturer's technical manual for your range.

To clean the oven compartment use the procedures recommended by the manufacturer's technical manual or the cleaning procedures posted near the range.

Electric Food Mixer

Electric food mixers are used for an infinite number of jobs including beating batters for cakes, mixing bread doughs, beating eggs, and mashing and whipping potatoes.

SIZES AND ATTACHMENTS.—Food-mixing machines (fig. 6-9) are furnished in 20-, 60-, 80-, 110-, and 140-quart sizes with the necessary attachments, paddles, and beaters (fig. 6-10). The wire beater is used for eggs, cream, and lightweight mixing; the flat beater for cake batters and mediumweight mixing; the dough hook for

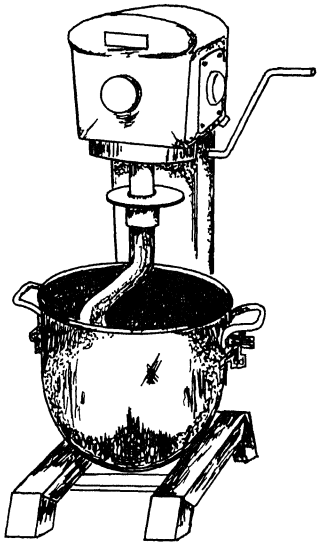

Figure 6-9.—Electric mixer.

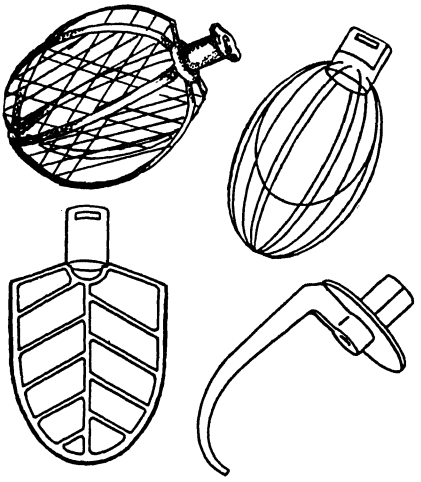

Figure 6-10.—Electric mixer attachments.

One part of the machine revolves through the use of a set of transmissions and differential gears. Various shaped paddles and mixers can be attached to this revolving unit.

The lower part of the mixer contains two extended, adjustable arms. A bowl, containing the foods to be mixed, is placed on these arms and the arms are then moved up so the paddles will revolve throughout the mixture. The machines have either three or four speeds. Usually they have an attachment hub that can be used for a vegetable slicer, juicer, and meat grinder.

OPERATION.—Before operating the machine make sure that the bowl, paddles and/or beaters are thoroughly clean. If necessary, wash them in hot soapy water and rinse with hot water (170 °F).

Place the ingredients in the bowl as specified on the *Armed Forces Recipe Card*. Do not fill the bowl more than half full. Place the bowl in a castered dolly when moving across the deck. Insert the bowl in the mixing machine, making sure that the bowl ears are on the supporting pins and both sides are locked in place.

Select the proper attachment and place it in the machine. The L-shaped notch in the beater is to be inserted over the pin in the shaft. On the smaller models the shaft will be grooved. The attachment is inserted into these grooves and slipped into the lock. Raise the bowl to the proper height by turning the wheel or crank.

Start the motor at NO LOAD and with clutch released shift to LOW SPEED; release the clutch each time the speed is changed. The speed to be used is indicated on the recipe card and on the instructions furnished by the manufacturer.

Watch mixing time and mixing speeds carefully. Often blended ingredients revert to separate ingredients if mixed too long or at an improper speed. If, during the process of mixing, some of the batter has piled up on the sides of the bowl, stop the machine. Using a long-handled spoon or spatula, scrape down the sides of your bowl. NEVER put spoons, spatulas, or your hands into the bowl while the machine is in operation.

When the mixing is completed, move the control switch to the OFF position and stop the motor. Lower the bowl by the lever with which you raised it; remove the beater by turning the sleeve to the left. Remove any food left on the beater with a spatula. Then, place the bowl on the castered dolly and move it to the place of use.

Some electric food-mixing machines are provided with bowls of two sizes—the 20-quart machine with both 12- and 20-quart bowls; the 60-quart machine with both 30- and 60-quart bowls; and the 80-quart with 60- and 80-quart bowls. When you are using a smaller bowl on a large machine, an adapter must be used as well as the correct beater and/or paddle for the different size bowl. At no time should the beater or paddle scrape the bottom of the bowl.

CARE AND CLEANING.—The electric mixer, beaters, whips, and bowls all require care. Beaters, paddles, and bowls should be washed immediately after each use. Use hot soapy water and rinse with hot water (170 °F). Hang beaters and paddles upside down to air dry. Clean the body of the machine after each meal. Use a damp cloth or wash with water as necessary for proper sanitation. Be sure that the beater shaft is free of all dirt and food particles.

The motor and mechanical parts of the mixer should be inspected and maintained by the engineering department once a week.

Electric Meat-Slicing Machine

Meat-slicing machines (fig. 6-11) are motor operated and are used for slicing hard or soft foods such as roasts, cheese, bacon, luncheon meats, and ham.

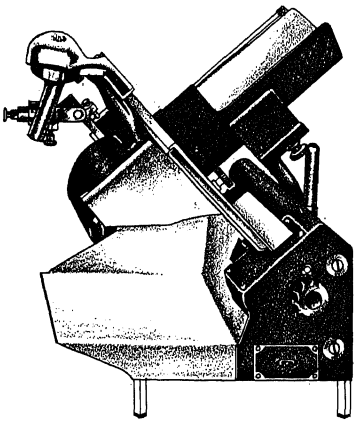

Figure 6-11.—Electric meat-slicing machine.

The machine has a carriage on which the meat is placed. A swiftly revolving disk knife slices the meat as the carriage is moved across the face of the revolving knife.

OPERATING THE MEAT SLICER.—Meat slicers may be either manual or automatic feed. To use the slicer, place the meat on the carriage and adjust the clamp to hold the meat firmly. Next, set the dial for the desired thickness of the slices. Set the machine on automatic or manual. Turn on power to the machine. If manual mode was selected, move carriage back and forth with the hand lever.

The meat-slicing machine must be hardwired (permanently attached) and have a backup electric switch. The meat slicer is a very dangerous piece of equipment. Never operate it with the blade guard off or put your hands anywhere near the blade while the blade is turning. The blade is very sharp so extreme caution should be used when sharpening or cleaning it.

CARE AND CLEANING.—The meat-slicing machine must be cleaned after each use. Before dismantling the slicer, you should make sure the electric power is secured. Remove all cutting and meat-handling attachments. Wash the attachments with soap and hot water; rinse with hot water. The attachments may be run through the dishwashing machine. Clean the knife and the body of the slicer by following the manufacturer's recommended cleaning instructions or the instructions posted by the machine. Reassemble the slicer immediately so that the bare blade will not be exposed. Do not forget to clean the counter top under the slicer.

Steamers

Steamers (fig. 6-12) are used for steaming fish, fruit, meat, poultry, and vegetables. Most steamers used in the Navy consist of a three-door, three-compartment unit. Each unit has one or two perforated pans or baskets.

OPERATION.—When operating steamers, you are not limited to the use of pans and baskets furnished with them. If juices are to be saved, you should cook in leakproof solid pans of a suitable size. Pans should not be overloaded; steam circulates best when pans are about three-fourths full. Different foods may be cooked in the same

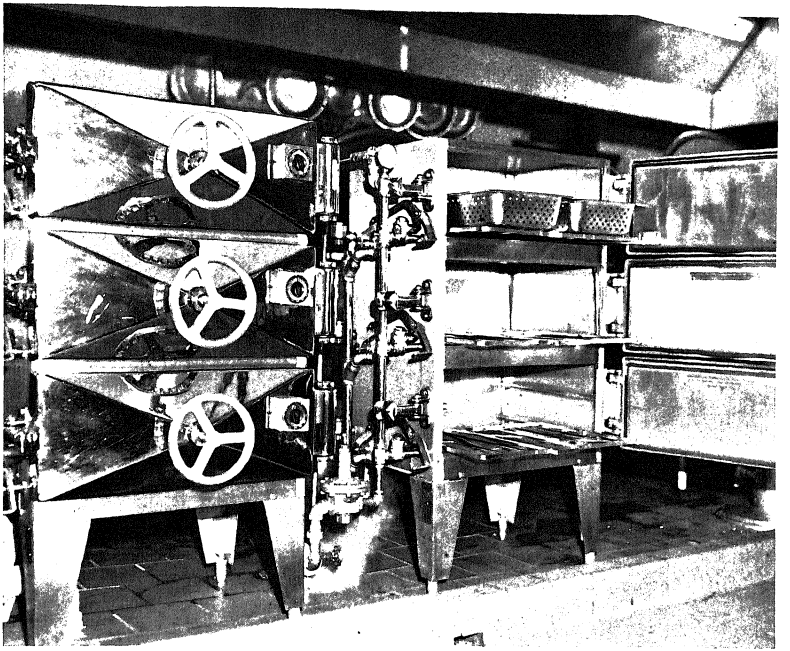

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Figure 6-12.—Steamers.

steam compartment without mixing flavors or affecting the taste of the different foods. Onions and pudding placed in individual pans may be cooked in the same steam compartment without a transfer of flavor.

After the food has been placed in the steamer, close the compartment door securely. (The door latch is linked with the steam supply on most steamers, and the final movement of the lever locks the door and turns on the steam at the same time. Unlocking the door turns off the steam before the door can be opened.)

If the steam supply is controlled separately, open the steam valve slowly by turning the valve wheel counterclockwise after the door is latched. Then observe the middle indicator on the pressure Turn the valve wheel clockwise to reduce steam pressure if it is above 7 psi.

Watch your cooking time closely and avoid spoiling food by overcooking. Less time is required for steam pressure cooking than for boiling food in water; the temperature of 7 psi steam is 233 °F, and the boiling temperature of water is 212 °F.

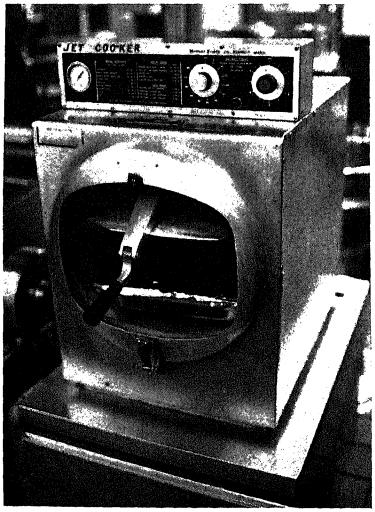
After cooking has been completed, turn off the steam supply by turning the valve wheel clockwise on separately controlled units, or by unlatching the compartment door of the latch-controlled steam supply. You can relieve the steam pressure by operating the lever of the safety valve, if one is provided; otherwise, wait 2 minutes before you open the door to full open position. The gauge should read 0 psi before the door is

CARE AND CLEANING.—Occasionally, when you examine the drainpipe for steam-condensate drip, none will appear after a few minutes of steamer operation. When this is the case, turn off the steam supply by unlatching the door or closing the valve, as necessary. The fault normally is stoppage in the trap, strainer, or drainpipe. To eliminate this condition, close the steam valve, remove the steam-trap strainer basket, and clean it by scraping out the solids and washing the basket until the mesh or perforations are open and clear. Clean the pipe connection in the steamer compartment, reassemble the strainer and repeat the pressure cooking. If there is still no drip, the steam trap is at fault, so report this to the engineer officer via the chain of command.

After each meal, the steamer should be brush-scrubbed, washed clean with hot soapy water, and rinsed with hot water (170°F) and allowed to air dry.

High-Compression Steamer

The high-compression steamer (fig. 6-13) is a modular unit that is used to defrost and cook food by using high-velocity steam. When steam enters the unit, it is piped to a jet box from which it is jetted directly onto the frozen food at approximately 200 mph. The steam gains the high velocity by being forced through a series of small perforations.



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OPERATION.—Check the steam supply gauge; 14 psi is needed for proper operation. Insert foods into the cooking chamber; then place the frozen food directly under the jet box; close and seal the door. Select the time (from 5 to 60 minutes) for the food to be cooked. Turn the selector switch to 60 minutes and then back to the desired cooking time. The pilot light indicates that cooking is in progress. Food is defrosted and cooked automatically. The pressure gauge rises to approximately 5 psi and after 2 minutes increases to 14 psi, where it will stay until cooking has been completed. The door must be kept locked until the cooking cycle has been completed. All steam will exhaust automatically and the buzzer will sound when the cooking cycle has been completed.

CARE AND CLEANING.—The steamer should be cleaned at the end of each day that it has been used. To clean the jet steamer, remove the jet plate, pan supports, and door, including gasket around the door, and wash in warm soapy water. Rinse well in warm water. Scrub the interior of the cylinder with warm soapy water and rinse well.

The door gasket must be kept clean at all times. With normal closing and locking of the door assembly, a steamtight seal should be made between the door gasket and the door opening. This seal cannot be maintained if particles of foreign matter are allowed to accumulate upon either of the contacting surfaces.

If leakage of steam occurs, the door assembly is improperly adjusted and a readjustment must be made to the adjustment screw.

Ventilator Hoods

Ventilator hoods, like people, come in a variety of shapes, sizes, and appearance, and vary in their effectiveness from barely acceptable to highly efficient. The filter-type hoods fall into the barely acceptable category, and the filterless grease extractors—mostly known as Gaylord ventilators—are the most efficient. Filter-type hoods are the hardest to keep clean and are

generally have no built-in fire protection system. If the filters are not replaced after cleaning, a buildup of grease deposits in the exhaust duct system could lead to a fire! Depending upon the type of fumes exhausted and the amount of use, the filter should be removed and washed in the dishwasher or deep sink daily, or no less than once a week. The hood chamber behind the filters should be cleaned while the filters are out and you should be sure the filters are replaced. Also, remember, with all ventilators, to remove the access cover plates on the exhaust ducts, inspect for grease buildup in the ducts, and clean as necessary.

The hood generally referred to as the Gaylord (named after the original manufacturer) is the type that uses an arrangement of internal baffles to cause the exhaust air to quickly change direction several times before it enters the exhaust duct; and in so doing, the air slings the grease out into the grease trough that is built into the bottom part of the hood. This action is what gives a hood the name of centrifugal grease extractor. Other than the air, the only moving part in this system is the fire damper which is spring-loaded to close the throat or inlet air slot in case of fire, and this damper, when open, also serves as the first of the air baffles. All the action up to this point is carried out automatically by the hood as long as the exhaust blower is operating correctly. Another automatic feature is the fire-sensing thermostat located in the exhaust duct work close to the hood.

From the outside, this looks like an aluminum box about 2 1/2 inches wide by 4 inches long by 1 1/2 inches deep. On the back of this, and projecting inside the duct, is a thermostat probe which is constantly checking air temperature in the exhaust duct. If a fire starts, and the air going by the thermostat reaches 250 °F, the thermostat switch operates a magnetic trip inside the fire damper control box (the one with the plunger mounted above the hood), the fire damper slams shut, and the blower shuts down. In later model hoods with automatic cleaning (more about this later), this condition also will cause the automatic water washdown system to come on and spray water into the hood until the temperature at the thermostat is less than 250 °F. On earlier models, the water or steam must be turned on manually. All shipboard model grease extractor hoods are fail-safe in that power failure or thermostat failure will cause the fire damper to close. This information will also be found on the nameplate on the damper control box. Complete technical information on airflow, electrical characteristics, and other data of primary use to engineering personnel can be found in *NAVSEA Technical Manual*, 0938-027-5010.

So much for the automatic features that the hood will perform. Now, on to the part that you, as an MS, should do to keep it working and ventilating properly.

All centrifugal grease extractor hoods require at least daily cleaning. You may find three different types of cleaning systems, all having a look-alike appearance but slightly different in method:

- Steam cleaning (manual)
- Hot water cleaning (manual)
- Detergent washdown system (automatic and manual)

In both steam cleaning and hot water cleaning, you must shut off the exhaust blower motor at the control panel, turn on the steam or hot water valve in the line leading to the upper part of the hood and allow it to run for 5 minutes or more, depending on how dirty the inside of the hood gets. If hot water is used, the temperature should be between 130 ° and 180 °F, and the closer to 180 °F the better. After shutting off the steam or water, open the inspection doors on the ventilator and see if the grease and dirt have been flushed away. If the entire hood interior is still dirty, you need to leave the valve open longer. If only a certain area is dirty, you may have a clogged spray nozzle. Clean the hold in the nozzle with a small piece of wire.

During the washdown, watch the drain line from the bottom of the hood. It should run freely and should be dumping through an air gap to a deck drain. No shutoff valves are allowed in the drain line and the line should never be directly connected to a drain. Otherwise, a stopped-up drain could allow sewage to back up into the hood and spill into food and food equipment. Hand clean all exposed surfaces of the hood including the front surface of the fire damper baffle. Watch your fingers when cleaning the damper. If the damper is accidently tripped, it could pinch your fingers against the back of the hood.

Automatic cleaning is a timed, push-button cleaning system. A dishwasher scrubbing action with detergent and hot water is obtained by directed spray nozzle action. The nozzles are located on 8- to 10-inch centers on the cleaning pipes mounted on the interior back wall of the

ventilator. The cleaning cycle is activated each time the blower serving the ventilator is stopped by pushing the stop button on the exhaust control and cleaning station. This shuts off the blower and releases detergent and hot water into the ventilator for a preselected and preset time on the adjustable timer in the exhaust control and cleaning station. After the cleaning cycle has been completed, follow the same steps as previously explained in manual cleaning, except clean the detergent tank and refill, if needed, with the correct detergent. Note that the timer for the automatic wash cycle is located in the stainless steel cabinet that houses the exhaust control and cleaning station. The length of the automatic wash cycle is adjustable and should be adjusted for the minimum time that will satisfactorily clean the hood. This will conserve utilities and detergent. The hot water shutoff valve, usually located in the cleaning station cabinet, should always be left on unless plumbing repairs are necessary. On some ships, where low water pressure or the amount of hot water available is a problem and where all galley hoods are connected to a single automatic wash system, installing activities have found it necessary to install individual shutoff valves in the hot water/detergent line at each ventilator hood. In these cases, be sure that only the valve at the hood to be cleaned is turned on. If you have an arrangement like this, for fire protection purposes, leave the valve to the hood serving deep-fat fryers turned on and all others off, except when they are actually being washed. Directions for priming the detergent pump are located most often on the inside of the door. Motor bearings on the detergent pump should be oiled once every 6 months.

BAKESHOP EQUIPMENT

Today's large ships and stations have bakeshops with a variety of equipment designed to help you prepare and serve bakery products.

Bread Dough Mixer

The electric mixer is explained in this chapter. On smaller ships, you will use a machine similar to this to mix bread and cakes, as well as other foods. On larger ships, where there is space for a separate bakeshop, you will use a bread dough mixer. Bread dough mixers should not be confused with food mixing machines.

If you are to use the dough mixer wisely, without danger of overloading, it is important that you know the capacity of the particular machine in your shop. This capacity is expressed in barrels. When dough mixers were first made, flour was packed in barrels and the size of the mixer was designated by the number of barrels of flour it could mix. Since 1 barrel of flour weighed 196 pounds, a 1-barrel machine was designed to mix a dough containing 196 pounds of flour into a 360-pound dough.

Dough Trough

A dough trough is the container in which dough is placed during the fermentation period. It is an oblong boxlike trough of steel construction equipped with four casters to permit easy movement in the bakeshop area.

Dough troughs are of various lengths and are designed to hold approximately 90 pounds of dough to a foot, or 50 pounds of flour to a foot. If the trough is too long for the amount of dough to be fermented properly, dam boards may be inserted so that the correct amount of space is available.

Dough Proofers

Dough proofers or fermentation rooms are used for conditioning dough and cooling baked bread. The air temperature and air moisture (humidity) in a dough proofer are kept at preset levels by automatic controls. Dough proofers are thermally insulated enclosures and vary in size from a small box with shelving to a room with space for many portable bread racks. The dough proofer is heated by steam coils or electric heating elements located inside the enclosure, or by self-contained air-conditioning units connected to the proofer by air ducts. For shipboard use, steam-heated dough proofers are furnished in various sizes; the number and size of the proofers depend on the capacity of the bake ovens installed in the bakery on board ship.

OPERATION.—The operation of all dough proofers is basically the same regardless of the size of the proofer. Air within a proofer should be kept at a preset temperature and moisture level. Dough proofers require at least 1 hour to attain the proper atmosphere; the unit should be started well in advance of anticipated use.

The time and temperature used to proof bread dough in the proofer should be as specified on the recipe card. Turn the steam valve on full and open the petcock to provide the necessary amount

of steam for humidity. Adjust the steam inlet valve to obtain the desired temperature. When the temperature and humidity are correct, place the pans of dough into the proofer and close the door.

Watch the time closely and test the dough periodically by pressing the fingers into it. If the depression is filled by rising dough, fermentation is progressing properly. To reduce fermentation, cover the bread pans with cloths and reduce the proofer temperature. At no time should there be more than 35 pounds of steam pressure allowed to pass through the steam coils of the proofer. Drain the condensation from the drip pan at regular intervals by opening the petcock.

CARE AND CLEANING.—Proofers should be maintained in a safe, sanitary, dust-free, rust-free, nonleaking, and economical operating condition. The enclosures and accessories should be kept free of flies, ants, cockroaches, mice, and rats.

Clean the floor, walls, top, and inside of the door. Scrape sides, corners, and guide rails with a putty knife. Scrub floor with long-handled scrub brush and hot machine-detergent solution; rinse and dry. Wipe guide rails and ledges thoroughly. Remove and clean water pan; rinse and wipe dry. Scrub exterior and underneath if space permits; flush with hot water.

Bread Slicer

The bread slicer is a machine with small thin blades. The platform on which the bread is placed is at about a 45° angle so that the weight of the bread will force the loaf down on the cutting blade when the machine is turned on. The cutting blades are attached to a cam shaft which has half the blades going in one direction and the other half going in the opposite direction. The reason for this is so that it will not tear the loaf while it is being sliced. Never use your hand to push the load through the machine.

VEGETABLE PREPARATION EQUIPMENT

Equipment found in the vegetable preparation room is used to prepare fruits and vegetables for cooking or baking. It is also used to prepare a variety of salads and dressings. On small ships, vegetable preparation is done in the galley.

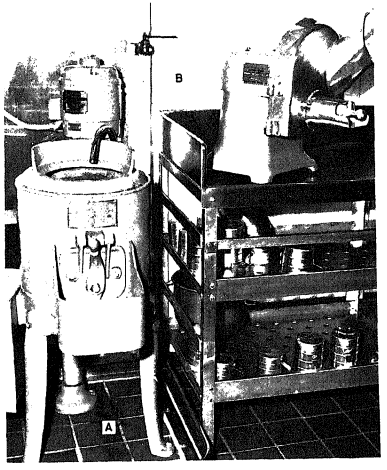

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Figure 6-14.—Vegetable peeler (view A) and vegetable cutter (view B).

Vegetable Peelers

Vegetable peelers (fig. 6-14, view A) have capacities of either 10, 15, 30, or 50 pounds and have a cylindrical hopper with an abrasive covered wall and an abrasive covered rotary disk in the bottom. The disk has a wavy surface. This surface agitates the vegetables in such a manner that they continually present new surfaces for action by the abrasive material.

OPERATION.—Before loading the machine, sort the vegetables so that those in any one load are of the same size and free of stones, sticks, and other hard objects. The machine should be started and the water turned into it before any vegetables are added. Do not overload the machine. The quantity of vegetables loaded should not exceed approximately 66 percent of the total hopper capacity. A larger quantity will not be thoroughly agitated.

If the abrasive surfaces of the machine are kept reasonably clean, a charge of vegetables should be satisfactorily peeled in about 1 minute. Deep eyes or depressions in potatoes should be

removed and the peeling finished with a hand peeler or small knife. It is wasteful to allow vegetables to remain in the machine longer than necessary because valuable nutrients will be lost.

CLEANING.—At the end of each day's use, secure the power and dismantle the machine. Lift the cover off and take out the abrasive disks; remove the peel trap and strainers; wash the removable parts, the interior, and the exterior of the machine with hot soapy water, and rinse with hot water (170°F). Be sure all food particles are washed out. Allow all parts to air dry before reassembling the unit.

Vegetable Cutters

Several types of electrically operated and manually operated equipment are used in the galley for cutting, slicing, and grating vegetables.

Electric Vegetable Cutters

Vegetable cutters (fig. 6-14, view B) are machines that, without the use of attachments or removable parts, make three classes of cuts of vegetables—shredded, sliced, and grated. A dial control on the side of the machine allows instant changing of the thickness of the cut, even while the machine is in operation.

The entire front of the machine swings open to provide complete access to the interior for the purpose of cleaning and changing the blade. The machine should be washed with hot water immediately after it is used. The knurled knob holds the front of the machine securely when it is in operation.

Clean and scrub the knives and bowl with hot, soapy water and a very stiff brush. Rinse them well with hot water (170°F) and allow them to air dry thoroughly before reassembling.

Vegetable Cutter and Slicer

The vegetable cutter and slicer (fig. 6-15) is used to cut vegetables that are to be used for cooking and for salads. The machine may be used to do as many as three different cutting jobs at once. It may be used for slicing either bias or horizontal french fries, julienne strips, and for coarse and fine chopping. The machine has a slicer adjustment for thicknesses up to 1/4 inch. The

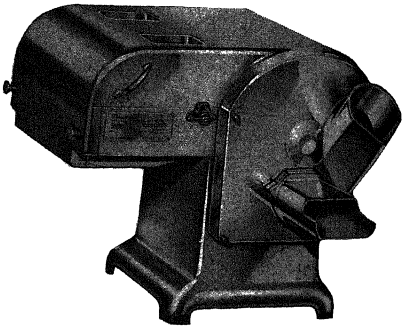

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Figure 6-15.—Vegetable cutter and slicer.

adjustment can be made while the machine is in motion. To make french fries or diced potatoes, the potatoes must be sized so that they will go into the machine.

When the machine is turned on, put a pan underneath the outlet to catch the water and vegetable particles and flush with water. This should be done after each use.

At the end of the day disassemble the machine and thoroughly clean the cutting plates and disks. Carefully inspect each part for strings of vegetables which may not have washed off.

This machine has points that must be oiled daily to prolong the life and efficiency of the machine.

BUTCHER SHOP EQUIPMENT

Butcher shop equipment is used to prepare meat, poultry, and seafood for cooking. Common uses are cutting meat into steaks and chops, grinding meat, and tenderizing tough cuts of meat.

Meat Saw

Electric sawing machines (fig. 6-16) are used mainly for cutting chilled, frozen, and smoked meats into steaks and chops. It is well to bear in mind that meat can be cut more uniformly by machine when there is still some frost in the boneless piece.

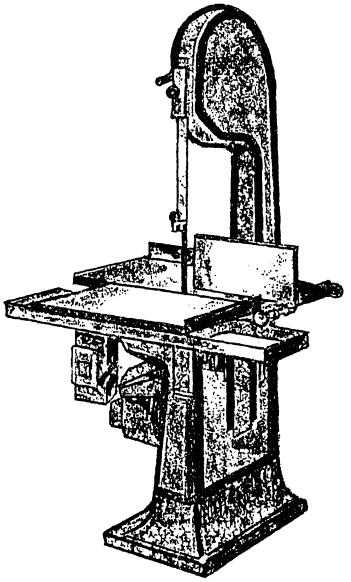


Figure 6-16.—Electric meat cutter (saw).

The saw is made to revolve by a mechanical arrangement of two wheels and an electric motor. The table on which the meat is laid is constructed so that you can cut the meat to any desired size. The saw blades themselves are 5/8 inch wide and about 10 feet long.

OPERATION.—Before operating the saw, you should tighten the blade using only one hand to apply just enough tension to keep it from slipping. Feed the meat straight through giving the blade a chance to cut. DO NOT FORCE. Use only sharp blades. Dull blades may heat up, twist, and break.

The electric meat cutter is a dangerous piece of equipment. A great deal of care is necessary to avoid injury when you operate this machine. There are five safety precautions that should be observed when you are operating the meat saw:

- Before you cut the meat, make sure that there should be no flexibility whatsoever. The feel of the saw blade will be solid when the right amount of tension is applied.

- Meat being sawed should be placed firmly against the sliding tray guide with enough pressure to maintain a uniform thickness of the slices.

- Never use unnecessary force when cutting (sawing) meat. It is possible to break the blade and cause serious injury to yourself or others from flying pieces of metal.

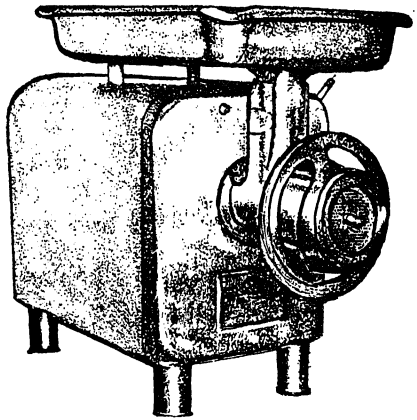
- Always make sure the guide is securely tightened after the adjustment for the thickness of the meat slices has been determined. Set the blade guide 2 inches above the meat.

- Always keep your hands on the part of the meat that is most distant from the saw blade.

CARE AND CLEANING.—The revolving wheels have grease chambers. Pack them frequently. Keep the machine clean. Oil it at least once a week. Always wash and sanitize the machine properly after each use or after every 4 hours of continued use. Use hot soapy water to wash the machine and rinse it with hot water (170°F). Do not drip water on the electric motor.

Meat Chopper

The electric meat chopper (fig. 6-17) is used to chop or grind all meats (cooked or raw) and



on a sturdy stand within easy reach of an electric outlet.

OPERATION.—Usually a 3/8-inch plate is used for grinding meat. The use of a 3/16-inch plate for such grinding puts too much pressure on the grinder. The cutting edge of the knife must go next to the plate. Never forcibly tighten the adjustment ring on the chopping end, but tighten it snugly. Excess pressure will wear the chopper parts.

Start the motor, then feed the material into the chopper. Turn the motor off after the material is ground. Feed the material into the machine with the tools intended for that purpose—NEVER WITH YOUR HANDS.

CARE AND CLEANING.—After meat has been chopped, take the grinder apart and wash each part thoroughly with soap and water, rinse with hot water (170 °F), and allow to air dry. Do not allow food to dry on the surfaces of the chopper before you wash it. A grinder can be a breeding place for bacteria that might cause food poisoning. Great care should be exercised in keeping the parts of the grinder free from contamination.

Knives and plates should be sharpened before they get dull, but do not attempt this yourself. The engineering department should be consulted. It is a good idea to keep the same knife and plate together as they wear to fit each other. Tie them together with a cord after they are used so they will not get mislaid.

Keep the motor dry. Do not grind juicy foods, such as onions, because the juice will be forced back into the gear housing, causing a loss of oil and consequent wearing of gears.

If you are grinding foods such as crackers, grind a very small amount at a time or the machine will jam. When the chopper is hot, do not run raw meat through it. Remember that bits of bones can break the warm gears and knives.

Meat Tenderizer

The meat tenderizer (fig. 6-18) is used to tenderize all sorts of tough meats. The machine is about 20 inches long and about 1 foot wide.

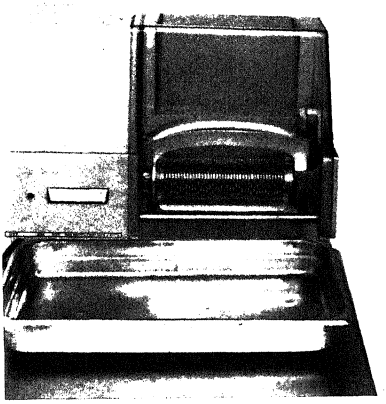


Figure 6-18.—Meat tenderizer.

To operate, turn the motor on, insert the meat to be tenderized into the opening at the top of the machine. The meat will pass through two sets of revolving rollers (which contain many small blades) and will be made tender. If further tenderizing is required, insert the meat again after first giving it a one-quarter turn (90°).

Meat-tenderizing machines are equipped with a safety device that automatically stops the machine when the cover (shield) is raised. NEVER attempt to raise the top with the machine running or to operate the machine with the cover raised because of the danger of catching your fingers in the machine. Take the machine apart and clean it after each use. Oil the parts often.

Knives

Many different sizes and shapes of knives are required for meat-cutting jobs. You must

understand which knife to use for each job and use it for the job it was intended. You should never use the thin-bladed knife that is designed for carving cooked meats to bone a roast. It is quicker and more efficient to use the boning knife which has a stiff, narrow, short blade to cut close around bones. The knives with the long, wide blades are used to cut steaks and roasts before they are cooked.

SHARPENING KNIVES.—To get the most use out of the knives in the galley, they must be sharp. A dull knife is a hazard and makes extra work for you. A boning knife has a comparatively narrow bevel and will stand more hard use than a steak knife which has a wide bevel and a thin edge. But no matter what tool you use, you cannot do a good job unless the tool is sharp. The butcher's steel is used only to keep the edges of knives straight and not to sharpen them. Nor should you sharpen knives on a power- or hand-driven stone, since this removes the temper from the cutting edge. The best things to use for sharpening are a waterstone and a carborundum oilstone. If you use the entire stone when sharpening tools the stone will not hollow out at any one point. Draw the full blade, from heel to tip, across the length of the stone and then turn the knife over and pull it back from the opposite end of the stone. This sharpens the knife evenly and smoothly and causes the stone to wear uniformly. Always clean the blade and handle thoroughly after sharpening.

STEELING.—In steeling, there is a definite technique. Specific types of steels should be used to true certain edges. Never use a rough steel. A smooth steel should be used to keep the blade in perfect condition and to maintain a keen edge. The steel should have good magnetism in order to hold steel particles. The easiest and most effective method of steeling a knife is outlined below.

1. Hold the steel firmly in the left hand, thumb on the top of the handle, with the point upward and slightly away from the body.

2. Place the heel of the blade against the top side of the tip of the steel. The steel and the blade should meet at an angle of about 25°.

3. With a quick swinging motion bring the blade down across the steel toward the left hand. This should pass the entire edge lightly over the steel.

4. Bring the knife into position again but with the blade against the bottom side of the steel. Then, repeat the same motion of passing the blade over the steel.

5. Repeat the motion, alternating the knife from side to side; a dozen strokes will true the edge. Steel your knives as often as necessary to keep their edges straight.

CARE OF KNIVES.—Never throw knives into a drawer with other cutlery or tools. It is a good idea to have a knife rack for each watch fastened to some convenient place in the galley. Do not use knives to open cans, cut wire bands, or open cases of foodstuffs.

SCULLERY EQUIPMENT

The scullery is one of the most important operations in foodservice. All dinnerware, silverware, and some food preparation equipment pass through this area for washing and sanitizing. You should be familiar with the operation and maintenance of scullery equipment.

Dishwashing Machines

Proper operation and care of dishwashing machines are vital to the sanitation, safety, and efficiency of your activity, so you must know your machines and follow directions for their use and maintenance.

Dishwashing machines used in the Navy are classified as one-tank, two-tank, or three-tank machines. The three-tank machine is a fully automatic, continuous racking machine that scrapes, brushes, and provides two rinses. It is used at major recruit installations and other large activities.

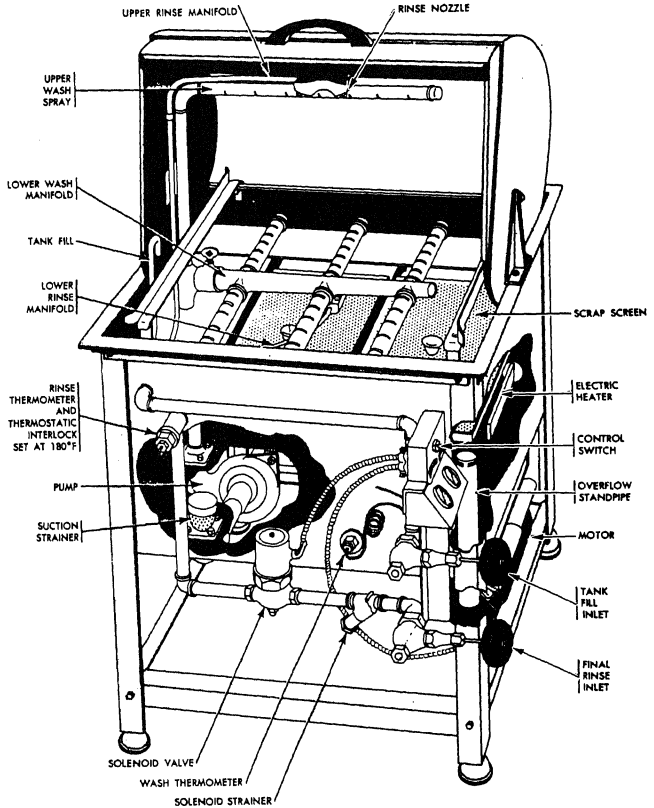


Figure 6-19.—Typical semiautomatic single-tank dishwashing machine.

SINGLE-TANK METHOD.—Single-tank machines (fig. 6-19) are used only on small ships where because of space and weight considerations larger models are not feasible.

To control the bacteria to a satisfactory minimum in single-tank machines, it is necessary that the temperature of the wash water in the tank be 140° to 160°F. Consequently, a thermostat is provided in the automatic machines to prevent operation when the temperature of the water falls below 140°F. Water temperature higher than

particles when certain starchy and albuminous foods are served. Therefore, the washing time is extended in automatic machines to 40 seconds. For best results, soiled dishes should be prewashed by hand in warm water containing detergent before placing them in single-tank washers.

Rinsing is done by means of spraying hot water on the dishes from an outside source and is controlled by an adjustable automatic steam-mixing valve that maintains the temperature of the rinse water between 180° to 195°F.

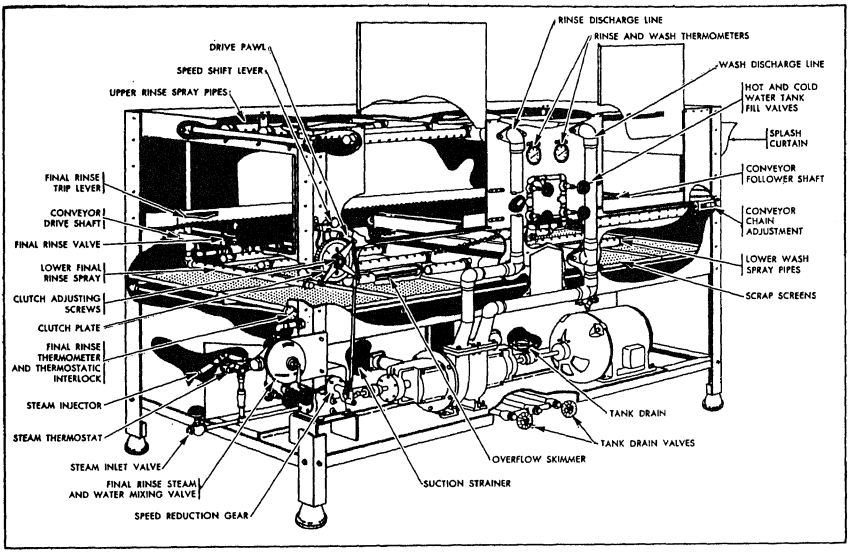


Figure 6-20.—Automatic double-tank dishwashing machine.

To conserve fresh water, which must come from the ship's hot water system, the rinse time interval is limited to 10 seconds. When the water supply is not a problem, a rinse of 20 seconds is recommended.

Wash and rinse sprays are controlled separately by automatic, self-opening, and self-closing valves in the automatic machine, or by handles in the manually operated machine. The automatic machine provides for a 40-second wash and a 10-second rinse; for manually operated machines, wash and rinse intervals are controlled by the operator who should allow a 40-second wash and a 10-second rinse.

DOUBLE-TANK METHOD.—Double-tank machines (fig. 6-20) are available with several different capacities and are used when more than 150 persons are to be served. These machines are provided with separate wash and rinse tanks. They also have a final rinse of hot water that is sprayed on the dishes from an outside source. This spray is opened by the racks passing through the machine. The spray automatically closes when the rinse cycle is completed. The final rinse is controlled by an adjustable automatic steam-mixing valve that maintains the temperature between 180° to 195°F. Double-tank machines are also equipped with a thermostatically operated switch in the rinse tank that prevents operation of the machine if the temperature of the rinse water falls below 180°F. The racks pass through the machine automatically by means of conveyor chains. The two-tank dishwashing machine should be timed so that the utensils are exposed to the machine sprays for not less than 40 seconds (20-second wash, 20-second rinse).

TRIPLE-TANK DISHWASHING MACHINES.—Some shore activities have triple-tank dishwashing machines installed. The procedures are basically the same with the following exceptions:

- The dishwashing machine consists of prewash, wash, and rinse sections with a final rinse.

- Refer to the manufacturer's operating and instruction manual for the preset temperature of

195 °F).

Operating the Dishwasher

The first thing you should do is to read and become familiar with the operating instructions included on the instruction plate which is mounted on the hood of the machine you are operating. Always follow these instructions. Otherwise, you may damage the equipment or injure yourself and others.

The following detailed instructions are given for double-tank machines since most machines in service are of this type. These directions are also generally applicable to single-tank units, except for wash and rinse time intervals and temperatures.

1. Inspect the machine to see that the wash tank is clean and all spray openings are free from food particles, strings, and other obstructions.

2. Close the drain valves on both tanks.

3. Open the water valves and fill both tanks to the level marked on each or up to the overflow line. When tanks are filled, tightly close the water valves.

4. Open the steam valve and heat the rinse tank water to 180 °F or higher (not to reach vaporization point). Leave the steam valve on the rinse tank open so that the temperature does not fall below 180 °F during operation of the machine. Machines are provided with a valve so that the final rinse temperature is 180 °F or above. This adjustment must be made with the final rinse valve open.

5. On conveyor-type machines, set the conveyor speed so that the dishes receive a minimum wash of 20 seconds and a minimum rinse of 20 seconds.

6. Add detergent. See *Operation and Maintenance of Dishwashing Machines*, NAVSHIPS 250-522, for the amount of detergent required for the wash tank size and the type of water being used.

thermostat that, if properly set, will prevent the motor from starting until the temperature of the rinse tank has reached 180 °F or higher.

8. Operate the machine for 1 or 2 minutes during which time the heat from the rinse spray should cause the temperature in the wash tank to increase gradually to 140 °F.

At this point you are ready to start the washing procedure. However, it is important that dishes be thoroughly scraped free of solid food residues before they are washed. Precleaning will extend the useful life of the detergent in the machine, will prevent clogging of the pump and spray jets, and generally will result in improved cleaning performance. The dishes should be held over a conveniently located garbage can and scraped with an approved all-plastic brush. Prewash all dinnerware in the scullery sink before washing in the dishwashing machine. Place scraped dishes in dishracks. Cups, glasses, and containers should be placed upside down in appropriate racks so they are not filled with wash solution that cannot be washed away. Dinnerware should never be nested since this prevents efficient washing and rinsing. Do not stack silverware more than 1 inch deep in the rack.

9. Push the loaded dishracks into the machine on the conveyor until the racks come up against the conveyor lug. With manually operated "push through" machines, be careful not to push the racks along too quickly since this practice will result in unsatisfactory cleansing. A minimum of 20 seconds should be allowed for each rack.

10. Maintain the temperature of the wash solution at 140 ° to 160 °F. Higher temperatures will result in the baking of egg and other protein solids onto the dishes.

11. Add one-fourth the original amount of detergent every 10 minutes of operation to compensate for the dilution and the increasing food particle load in the wash water.

12. Observe that as the first rack is discharged from the machine, the thermometer on the final rinse shows a temperature between 180 ° to 195 °F.

13. Eating utensils should remain in the rack for approximately 1 minute for drying. When

silverware racks are discharged from the machine, shake the rack slightly to get rid of entrapped water in the bowls of spoons and from the surfaces of all utensils.

After the dishes have been properly washed and cleaned, they should be stored in a clean, closed area to avoid recontamination.

The washing of silverware is often unsatisfactory because too much silverware is placed in the rack to be thoroughly cleaned. The proper procedure for washing the silverware is to sort the silver and place 15 to 20 pieces in each cylinder-shaped compartment; run the silverware through the dishwashing machine with the service end up. When the wash-rinse cycle is complete, the sanitized silver should be stored by inverting it in the cylinder-shaped containers; thereby the washing and sanitizing is done without having to touch the utensils.

Cleaning and Maintenance of Dishwashing Machines

Clean and rinse the interior of the machine, spray arms, and strainer pans after each period of use (fig. 6-21).

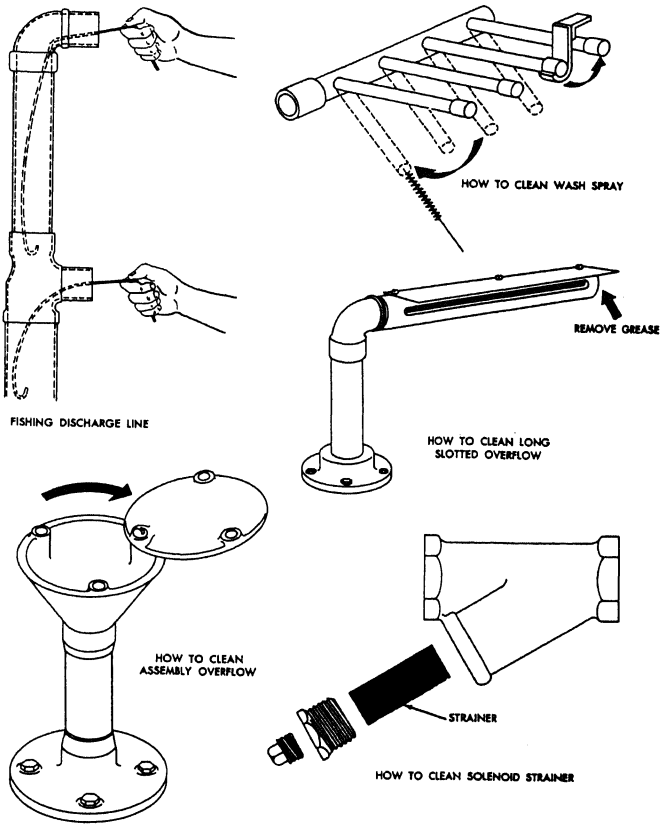


Figure 6-21.—Cleaning sprays, drains, and strainers on dishwashing machine.

Brushes are provided for cleaning the removable spray arms. After they have been cleaned, they should be replaced in the machine so that the spray is directed vertically and not against the sides of the machine. Check the machine for leaky valves and report leaks to the food service officer immediately. Have all moving parts lubricated at regular intervals.

Descaling Dishwashing Machines

The interior of the dishwashing machine and the manifold(s) should be inspected monthly for accumulation of calcium or lime deposits. If deposits are evident, the machine must be descaled.

Descaling the machine should be a part of the planned maintenance system (PMS) and is the responsibility of the foodservice division. The descaling operation must be closely supervised from start to finish, and personnel must wear face shields, chemical safety goggles, rubber gloves, and rubber aprons when handling acid.

The accumulation of scale deposits in dishwashing machines should be prevented for at least two reasons. First, excessive scale deposit on the inside of pipes and pumps will clog them and thus interfere with the efficient performance of the machine by reducing the volume of water that comes in contact with the utensil in the washing and sanitizing process. Second, scale deposits provide a haven for dangerous bacteria.

The supplies needed for descaling are available through Navy supply channels. See the supply list below:

Stock Number	Description of Material
9G6810-00-264-6722	Orthophosphoric acid 85% technical, 7-lb bottle
9Q7930-00-282-9699	Detergent, general-purpose, 1-gal can
9Q7930-00-985-6911	Detergent, general-purpose, 5-gal pail

It is necessary to know the capacity of the dishwashing machine tanks. This may be determined by measuring (in inches) the inside dimensions of each tank, applying the following formula: length × width × depth (to waterline)/ 231 = capacity in gallons.

Steps and key points in descaling the machine are as follows:

1. Fill the tanks halfway to overflow level with hot, clean water.

   If tanks are not fitted with water level indicators, remove a section of the scrap tray in each tank so that the overflow pipe can be seen.

2. Add the required amount of acid and detergent to the water to prepare the cleaning solution.

   Measure amounts carefully. Use 7 fluid ounces of orthophosphoric acid 85% plus 1/2 fluid ounce detergent, general-purpose, for each gallon capacity of the tank when filled to overflow level.

3. Complete filling of the tanks.

   Fill to overflow level.

4. Put scraps trays, spray, and curtains in place.

   Scale deposits on all attachments must be removed.

5. Turn on machine.

   Operate the machine at the highest possible temperature for 60 minutes.

6. Turn off the machine and drain.

   Open the drain valves and allow all the cleaning solution to drain from the tanks.

7. Refill.

   Use fresh hot water.

8. Turn on the machine.

   Operate the machine at the highest temperature for 5 minutes.

Repeat steps 7 and 8 several times. The entire method should be repeated at such intervals as may be required to assure freedom from interference with efficient operation of the dishwashing machine.

Garbage Grinder

Garbage grinders are found in sculleries and deep sinks. They are used to dispose of food from plates, unused food items and other wet garbage. Always read the operating instructions posted near the grinder before using.

GALLEY EQUIPMENT

Galley equipment is used in galley operations to toast, mix, store, and hold prepared foods during the meal.

Steam Table

Steam tables are used for serving hot foods. There are several types: (a) those with water compartments heated by steam coils at 40 psi pressure or less; (b) those with steam-heated water compartments and dishwarmers; (c) those with water compartments heated by immersion-electric heating elements; and (d) dishwarmers.

Most steam tables used in general and private messes today are immersion-electric heating element types.

OPERATION.—Do not overload food pans. An excessive amount of food makes it difficult to maintain the correct water compartment temperature which is between 180° to 200°F. If, on the other hand, water in the steam table is allowed to become hotter than 200°F, the food will dry rapidly and continue cooking from the excess heat. You can correct this by adding more water to reduce the heat. Because food tastes best if served within 30 minutes (preferably within 15 minutes) after being placed in the steam table, do not place food pans in the steam table too early.

CARE AND CLEANING.—After each meal, drain the steam table, wash the tanks with hot soapy water, and rinse with very hot fresh water of at least 180°F. Wash the top and front of the steam table to make it bright, clean, and sterile; then wipe it dry with a clean cloth.

Electric Toasters

Electric toasters used in the galley and dining area are the intermittent and continuous types. The intermittent type is composed of chrome-plated steel and has a vertical oven with two to four openings for inserting the bread slices. The continuous type (fig. 6-22) has a chrome-plated

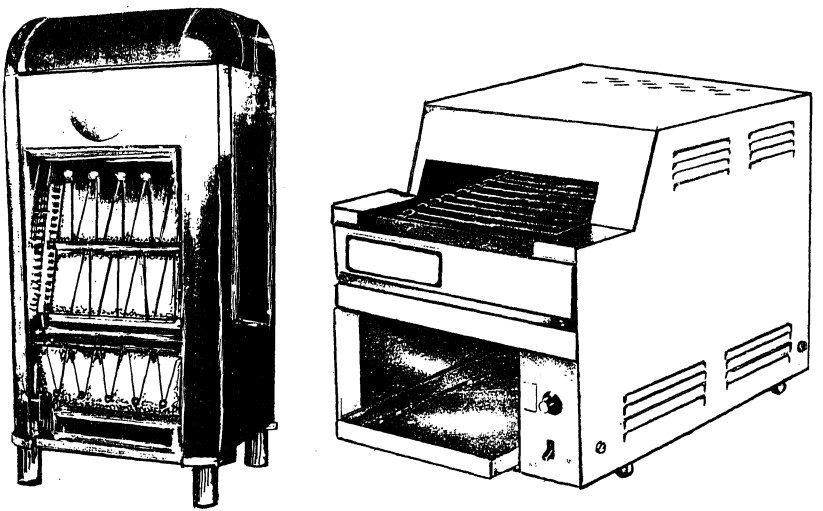


Figure 6-22.—Continuous-type toasters shaper.

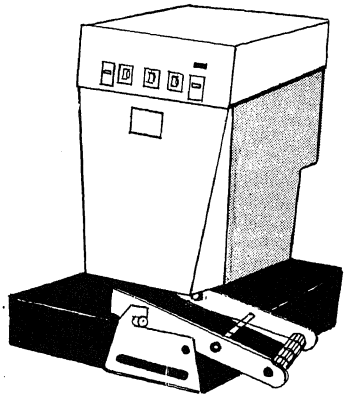


Figure 6-23.—Potato mix (french fry).

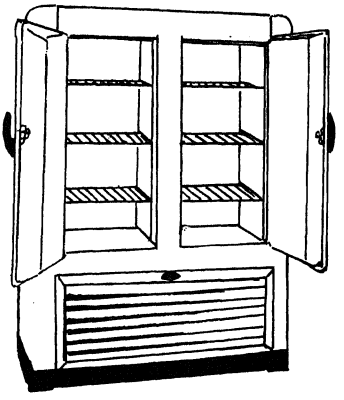


Figure 6-24.—Refrigerator.

heavy-duty conveyor with motor-driven trays for the bread.

Shaper, Potato Mix (Extractor)

Potato shapers (fig. 6-23) are used to reconstitute dehydrated potatoes into formed french fries. They are available with optional shaping heads and a conveyor. Some of the shaper accessories are dicers, onion rings, steak fries, shoestrings, and hashbrowns.

Refrigerators

The refrigerator used in the galley is similar to the one illustrated in figure 6-24. It consists of an insulated, stainless steel compartment and rust-proof, acid-resistant shelves. The refrigerator may be 5 or 100 cubic feet in size and is designed for storing foods for short periods of time. Most refrigerators installed aboard ship have movable bars that fit in front of each shelf to keep the contents of the refrigerator from moving or falling out when the door is opened. At sea, food must be stowed in such a way that it will not move around when the ship rolls. To keep a refrigerator operating at top efficiency, three things are important:

- Keep it clean.
- Do not overload it.
- Defrost it regularly and properly.

DEFROSTING.—You may defrost the refrigerator on a schedule or when the frost accumulation requires it. The number of times that a refrigerator requires defrosting depends, of course, on the rate at which frost builds up on the cooling unit. Ice formations should never be more than three-sixteenths of an inch thick because ice and frost act as insulators and reduce efficiency.

Defrosting is done by turning off the refrigerator, removing all food, and blocking the doors open. Defrosting may be speeded up, however, by placing pans of hot water in the freezer compartment. Do NOT scrape or chip the ice from the cooling coils as they are easily damaged, and do NOT pour hot water over the ice accumulation to melt it.

CLEANING THE REFRIGERATOR.—A refrigerator that is not thoroughly clean will quickly develop a bad odor, and the foods in it will spoil. Cleanliness retards the growth of mold and bacteria which often cause food poisoning. A refrigerator should be cleaned at least once a week and after each defrosting. Never use a water hose in cleaning a refrigerator. The fluid may seep into the insulation and cause permanent damage. The proper cleaning procedures are as follows:

1. Wipe the gaskets around the door of the refrigerator to remove any oil or grease.
2. Wash the inside surfaces and food shelves with soap and warm water.
3. Rinse them with a warm solution of baking soda, using 1 tablespoon of soda to 4 quarts of water.

4. Dry all surfaces thoroughly after flushing out the drain with hot water.

5. Clean the outside with warm water, rinse, and dry.

AVOID OVERLOADING.—Never overload a refrigerator. An overloaded refrigerator cuts down air circulation and is hard to clean. To prevent overloading, limit the amount of food you draw from bulk storage at any one time. When you draw food that must be kept in the refrigerator, don't ask for more than you can store in your ready-service refrigerator.

DINING AREA EQUIPMENT

The types of equipment that may be found in general mess and private mess dining areas range from the essential to the latest foodservice equipment. Some of this equipment is explained in this section.

Refrigerated Salad Bar

Mechanically refrigerated self-service cold food counters (fig. 6-25) with refrigerated storage compartments (salad bars) are procured in various sizes from three- to six-pan compartment capacity with either a single door or double doors underneath storage areas.

OPERATION.—Usually the refrigeration to the top section of the salad bar is controlled by a separate switch. This switch should be turned on approximately 1 hour before putting the salads on it to allow the temperature to drop below 40 °F.

DEFROSTING AND CLEANING.—The refrigerated salad bar should be defrosted and thoroughly cleaned after each meal. Steps in defrosting and cleaning are as follows:

1. Turn off the switch of the top unit and allow it to defrost freely. Do not use any metal objects to remove ice as it may puncture the coils.
2. To clean, remove all inserts of salad and dressings and return them to the vegetable preparation room.
3. Discard the ice.
4. Using the two-pan method, you should clean and rinse the salad bar and allow it to air dry. Special attention should be given to the drain to make sure it is free of food particles and is draining properly.
5. To clean the storage section of refrigerated salad bars, follow the same procedures as for the top unit, paying particular attention to the drains and door gaskets.
6. Clean the sneeze shield, legs, and metal frame.
7. Clean the exterior of the salad bar as recommended by the manufacturer's technical manual.

Refrigerated Milk Dispensers

Refrigerated milk dispensers (fig. 6-26) may be procured in several different styles. The styles are as follows:

- Front or rear loading

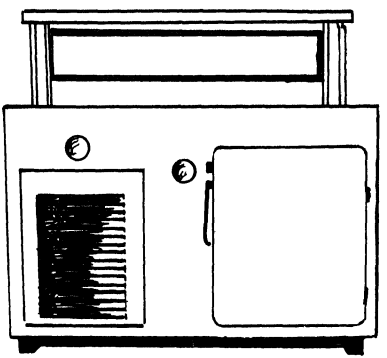


Figure 6-25.—Refrigerated salad bar.

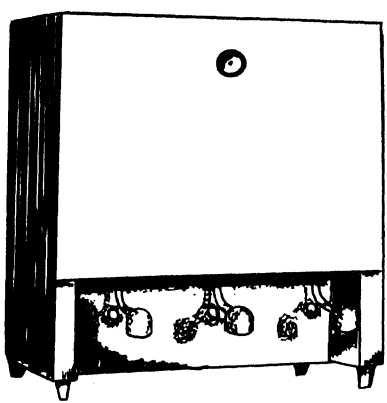


Figure 6-26.—Refrigerated milk dispenser.

- Sizes: 1—holds one 5- or 6-gallon container

  2—holds two 5- or 6-gallon containers

  3—holds three 5- or 6-gallon containers

OPERATION OF THE MILK DISPENSER.—Before loading the machine, you should make sure the temperature range is from 38° to 44°F. Fill the milk dispenser. Cut milk dispensing tubes with a clean, sharp, disposable plastic knife at a point 1/4 inch below the dispensing valve opening.

CLEANING.—After each meal you should clean the milk dispenser as follows:

1. Clean the exterior; making sure that the base of the machine around the legs, metal seams, and the edge under the dispenser opening and door are thoroughly cleaned.

2. Remove and disassemble the metal dispensing valve. Place all stainless steel parts in the dishwashing machine.

DEFROST.—Defrost the milk dispenser when the ice reaches a thickness of 1/8 inch. Defrosting procedures are as follows:

1. Remove milk containers and place them under refrigeration while defrosting.

2. Turn off electric power supply; open the door and allow the machine to defrost freely.

3. Do not use metal objects to dislodge ice.

4. After defrosting, you should clean the interior of the machine with (two-pan method) one pan containing 2 tablespoons of liquid detergent to each gallon of hot water used in conjunction with a nylon-bristled brush. Pan number two contains hot clean water or a sanitizing solution used with a clean sponge.

5. Special attention should be given to the door gaskets.

6. After defrosting and cleaning, you should turn the electric supply on.

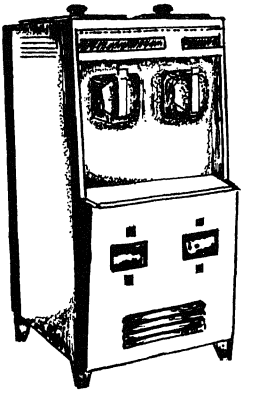


Figure 6-27.—Soft-serve ice cream machine.

Soft-Serve Ice Cream Machine

The soft-serve ice cream machine (fig. 6-27) is a refrigerated unit that manufactures and dispenses soft ice cream, milkshakes, and frozen desserts. It either has one or two dispensing heads and, depending on the size of the ship or station, is either a table model or deck mounted and completely self-contained. Various models are used throughout the Navy, so consult the operating manual for information regarding your particular activity.

OPERATION.—To assemble the machine proceed as follows:

1. Lubricate the bearing surface and the seal ring of the beater drive shaft and insert shaft through rear shell bearing with hexagon end seated firmly in drive socket of gear unit. Do not put lube on hex end of shaft.

2. Install scraper blades in blade holders on beater frame with cutting edge toward the outside and with pins through holes in the ends of the blades.

3. Hold the blades in place and insert beater into freezer shell with drive bar over flattened surface of beater drive shaft and all the way back.

4. Position freezer door gasket and bearing sleeve on door.

5. Apply lube to surface of draw valve plunger and insert in drawoff tube with slotted bracket toward operator's right.

6. Position freezer door over studs around freezer opening and install hand screws. Tighten bottom screws first to provide positive seal. (NOTE: If it is a soft-serve operation, snap design ring in place over bottom of drawoff tube. The design ring is not used on shake freezers.)

7. Sanitize freezer. Prepare sanitizing solution according to package directions on calcium hypochlorite or disinfectant-foodservice. Pour the solution into hopper and brush solution over entire inside and lid. Rotate dasher as solution runs through mixer. Use only the wash switch. Drain completely.

You are now ready to add the product. Proceed as follows:

1. Precharge freezing chamber with 4 quarts of mix if beater has two scraper blades and 2 1/2 quarts of mix if beater has one scraper blade. Pour into mix hopper and allow to flow into freezing chamber. Do not pour more than the precharge amount to start up freezer.

2. Move rocker switch to AUTO position. (Dial light will come on.) Allow freezer to operate until product reached the proper temperature and the condensing unit stops.

3. Assemble mix feed with float and cap in position and install in feed tube of mix hopper.

4. Fill hopper (below open end of mix feed float chamber) with at least 2 to 3 gallons of mix.

5. Install mix hopper cover with mix level indicator in position and put the indicator housing in place.

6. To draw product with soft-serve type valve, hold cup or cone under drawoff nozzle and push draw valve handle up. To close, release handle.

7. Refill mix hopper when mix indicator reaches the bottom of the indicator housing.

CLEANING AND SANITIZING.—To clean and sanitize the soft-serve ice cream machine proceed as follows:

1. Move rocker switch to WASH position. Remove mix hopper cover and mix feed assembly. Draw all remaining product.

2. Rinse freezer with cold tap water. Draw off and move rocker switch to OFF.

3. Pour 4 quarts of solution (hot detergent water) into hopper, cleaning feed tube with short brush as solution enters freezer chamber. Move rocker switch to WASH position. Run beater a maximum of 2 minutes and draw off. Move rocker switch to OFF position.

4. Remove freezer door assembly and drawoff plunger and take off door gasket and bearing sleeve.

5. Remove beater, blades, and beater drive shaft.

6. Disassemble mix feed assembly and mix hopper cover assembly.

7. Prepare sanitizing solution according to package directions on calcium hypochlorite or disinfectant-foodservice. Dip hands in this solution before assembling machine. Dip each part in solution as machine is assembled. Pour remaining solution into hopper and brush solution over entire inside and lid. Rotate dasher as solution runs through mixer. Use only the wash switch. Drain completely.

8. Freezer must be resanitized before it is used.

9. After each use, lift one or both of the hinged top side housings and dump and rinse the drip tray that catches seepage from the bearings at the back of the freezer shell.

Coffee Makers

Coffee makers used in the general mess are normally electric and may be of different types. The twin automatic coffee urn and the automatic

coffee maker (figs. 6-28 and 6-29 respectively) are the types used most often in general and private messes.

OPERATION OF THE TWIN AUTOMATIC COFFEE URN.—To brew coffee, turn thermostat dial to BREW position. Observe dial thermometer on front of the urn. When brewing temperature is at high end of brew zone on dial, the urn is ready to brew coffee.

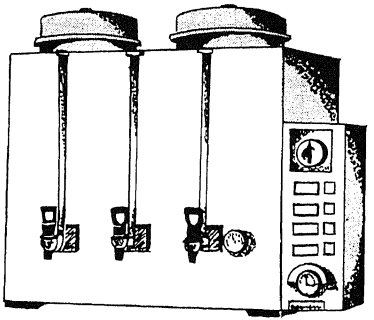


Figure 6-28.—Urn coffee twin automatic.

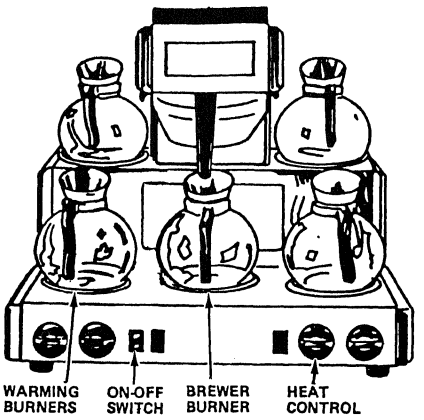


Figure 6-29.—Automatic coffee maker.

Place paper filter or muslin leecher bag in brew basket. Place desired amount of coffee in filter (use urn grind coffee in 3-gallon urn and regular grind in larger urns), replace cover, and place brew basket in position over coffee liner. When using muslin bag, be sure bag is soaked with cold water before using, and, if a new bag, be sure to wash out all sizing with warm water. Swing spray arm from PARK position over brew basket, and center spray nozzle over brew basket. Push timer knob. After the timer has completed its cycle, the orange brewing light will go out, showing that the proper amount of water has been sprayed over. Within 3 minutes the brew basket with spent coffee grounds should be removed from urn. To do so, swing spray arm back to center PARK position. The spray arm should always be parked in this center position so expansion drippage will go back into tank. Do not leave the brew basket in liner over 5 minutes, if possible. Remove cover and brew basket and then always replace cover over coffee liner. Rinse out muslin leecher bag and store in cold water until ready to use.

Keep the thermostat dial at HOLD position during all standby periods, and urn is ready to brew coffee at all times, with no waiting. Merely turn thermostat to BREW position so pilot light lights up during brewing. During shutoff periods, turn thermostat to OFF. Maximum 55-minute warm is required after all night or weekend shutoff. On twin models, water for tea may be drawn from center faucet. Manual refill is required unless equipped with auto refill.

CARE AND CLEANING OF A COFFEE URN.—The procedures used in caring for and cleaning a coffee urn are as follows:

1. Always rinse urn immediately after each use.
2. Add small quantity of hot water, brush sides, and rinse with hot water until it runs clean. Urn is now ready for next batch.
3. At end of each day clean and brush urn several times and then rinse thoroughly with hot water.
4. Remove cleanout cap at end of coffee faucet (or take apart faucets that have no caps) and scrub pipe leading to center of urn. Clean urn gauge glass with brush and urn cleaner. Rinse!
5. Scrub the faucet and then rinse it thoroughly with hot water.
6. Place a gallon or more of fresh water in urn until next use.

7. Remove cover and clean. Replace cover and leave partly open.

8. ALWAYS REMEMBER TO EMPTY AND RINSE THE URN WITH HOT WATER BEFORE USING AGAIN.

NOTE: On automatic urns, use any of the BREW, START, STOP, or RINSE switches to spray scalding hot water into liner for cleaning and rinsing. On pourover urns, draw hot water directly from urn. Make sure urn water tank is kept nearly full and the heat is on.

DESTAINING A COFFEE URN.—The procedures for destaining coffee urns are as follows:

1. Fill urn with destaining compound solution. Fill urn with water 175°F. Add destaining compound (stain remover, tableware, in this ratio: 2 tablespoons per 5 gallons of water or as directed by manufacturer).

2. Draw off mixture and repour. Open spigot and draw off 1 gallon; thoroughly remix to allow mixture to come into faucet. Allow solution to stand for 1 hour at 170° to 180°F. Stir occasionally.

3. Scrub urn liner, gauge glass. Use long-handled brush to loosen scales.

4. Clean faucet. Take faucet valve apart and clean all components. Soak in hot water until reassembled.

5. Rinse and reassemble faucet valve. Rinse urn liner three or four times carefully with hot water. Repeat until all traces of compound are removed.

OPERATION AND CARE OF AN AUTOMATIC COFFEE MAKER.—The automatic coffee maker (fig. 6-29) is designed to brew fresh coffee under strict, sanitary conditions. Each coffee maker is made in units, and each unit may contain four or five burners set in a single or double deck. The coffee maker has the ON/OFF switches and the HEAD CONTROL switches on the front. Glass or metal bowl containers are supplied for the actual brewing of the coffee.

Automatic coffee makers let you pour fresh water into a reservoir at the top of the device to obtain the same amount of hot coffee. In some models, gravity displacement of preheated hot water by cold water is the working rule. In others, water is brought to a boil before brewing a batch of coffee.

In using an automatic coffee maker, there are two phases in making coffee, preheating and brewing. The preheating phase consists of some of the following steps. Slide the brewing chamber under the spray head and place an empty decanter under it. Then open the top cover and pour two decanters of cold water in the reservoir. Replace cover. Make sure to plug into electric outlet of the correct voltage (specified on the nameplate of device). It should be noted that two decanters of cold water are poured in before connecting the plug. Preheat time is usually 18 minutes, and a signal light will turn on when the water reaches the proper brewing temperature. At this point, add a third decanter of water to the reservoir. Hot water will immediately start to flow into the empty decanter beneath the brewing chamber.

Brewing good coffee requires skill, technique, and the experience of the skilled foodservice specialist. To properly brew coffee, remove the brewing chamber and place one paper filter in it. Add required amount of the recommended coffee grind. Check to be sure that the coffee is evenly leveled before replacing brewing chamber. Add a decanter of cold water to the reservoir; coffee will immediately start to brew and flow into the decanter under the brewing chamber. When the flow stops, you are ready to serve.

The simple care of your equipment makes an important contribution to the excellence of your coffee service and efficient use of energy.

All parts of the brewer that come into contact with the coffee and coffee vapor should be kept immaculately clean. Decanters, for example, should be thoroughly cleansed and rinsed free of detergent after each use. Spray heads should be checked regularly for traces of lime or other deposits in or around the holes. Keep them clean.

Paper filters should never be reused as they can pick up odors from other foods. Discard after each brewing process. Be careful where you store them.

Cloth filters should be rinsed after each brew and stored overnight in a vessel of fresh cold water. Replace cloth filters often to ensure good tasting coffee. A simple sniff test should tell you when it is time to change.

New cloth filters should be cleaned and rinsed in very hot water to remove sizing (starch) and cloth odors. Do not use soap, bleaches, or detergents since they transfer flavors.

If you brew in sealed filter bags with a stainless steel filter screen, rinse out the holding cartridge and screen daily. Once a week, soak the screen

overnight in a solution of urn cleaner and rinse thoroughly before reusing.

FOODSERVICE SAFETY

A well-organized and fully enforced safety program will reduce accidents that result in lost time, administrative burdens, and undue hardships to all concerned. A safety-conscious operation with well-trained personnel will result in better foodservice to the general mess patrons, more efficient work habits by all personnel, and a more pleasant working environment.

SAFE WORKING ENVIRONMENT

It is necessary to have a safe working environment before foodservice operations themselves can be made safe. Some of the conditions that make an operation safe are as follows:

- Proper care and maintenance of all deck surfaces.
- Correct safety instructions posted near the correct piece of equipment at all times.
- Manufacturer's manuals are maintained and referred to for correct and safe operation of each piece of equipment.
- First aid training is regularly scheduled and conducted by qualified personnel.
- Personnel know the location of all safety/emergency switches.
- Clearly designated fire exits are kept clear and clean at all times.
- Personnel report unsafe work conditions and malfunctioning equipment to their supervisor immediately.

FOOD PREPARATION AREA KEY POINTS

In the food preparation area, some key points to remember for a safe working environment are as follows:

- Use care when lifting covers on steam-jacketed kettles.
- Use guards or spigots to avoid splashing when drawing hot water or draining the coffee urn.
- Use hot pads when handling hot utensils.
- Never run or skylark with a knife, which you should carry with the handle down and the blade against the back of the forearm.
- Clean up spills immediately.
- Keep oven doors closed when not in use.

CHAPTER 7

FOOD PREPARATION

The objectives of good food preparation are to conserve the nutritive value of the food, to improve the digestibility, to enhance flavor, to develop attractiveness of the original color, shape, form, and texture, and also, to free the food from injurious organisms and substances.

Remember that your job as a Mess Management Specialist (MS) is of vital importance to your organization; people must eat to perform their assigned jobs. The end result of your work is for the food to be enjoyed by the patrons of your mess. To achieve this you must continually strive for perfection in providing palatable, wholesome, and attractive food.

This chapter covers some of the what, how, why, and when of food preparation.

BASIC GUIDES

The quality of food prepared in the general mess (GM) and private messes can be controlled to a great extent by the use of management tools. These tools provide guidance for the MSs assigned by giving them a clear understanding of why they are there and how they promote efficiency and quality. These tools are the General Mess Menu, NAVSUP Form 1080, *Armed Forces Recipe Service*, NAVSUP P-7, and the Food-Preparation Worksheet, NAVSUP Form 1090.

FOOD-PREPARATION WORKSHEET

The first requisite to good cooking is an accurate knowledge of the items to be prepared. MS personnel have specific instructions on which foods to prepare, the recipe card number, the number of portions to prepare, time to start preparations, special instructions from the leading MS, and serving instructions. These instructions are furnished on the Food-Preparation Worksheet, NAVSUP Form 1090. See figures 7-1A, 7-1B, and 7-1C.

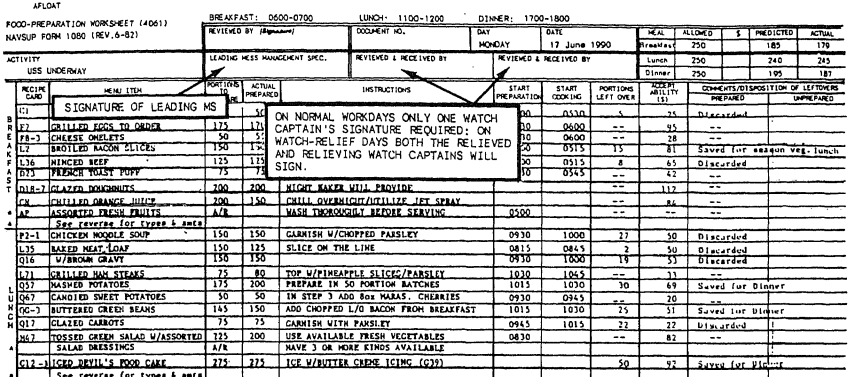
The information listed on the food-preparation worksheet becomes a written directive for passing information from the leading MS to the watch captains and other personnel involved in the preparation of the food.

This worksheet is required for all GMs; however, GMs having four or less MSs may use a modified food-preparation worksheet (fig. 7-1C). At most large GMs, food-preparation worksheets for each work center are prepared. This eliminates the necessity to include the vegetable preparation room, bakeshop, and meat preparation room on the reverse side of the food-preparation worksheet. This side may then be used to record temperature readings, meat breakout requirements, serving line and scullery temperatures, and any additional information required by the food service officer. The food-preparation worksheet is also a valuable record of the menu for the day. Information that is a "must know" for any person supervising a general mess can be posted on it. This information includes the number of persons actually fed and the acceptability of specific menu items. Also, this information is useful when the leading MS prepares future menus and food-preparation worksheets. The food-preparation worksheet is retained for a period of 1 year for afloat activities and 2 years for ashore activities.

ARMED FORCES RECIPE SERVICE

The *Armed Forces Recipe Service* (AFRS) was developed as a joint effort of all branches of the armed forces with the cooperation of the food industry. It consists of approximately 1,800 recipes and variations that have been tested and proven. The recipe service also contains the following:

- Guidance cards with product usage and preparation information
- Color photographs of finished products and some stages of preparation



AFLOAT

FOOD-PREPARATION WORKSHEET (4061)
NAVSUP FORM 1080 (REV. 6-82)

BREAKFAST: 0600-0700 LUNCH: 1100-1200 DINNER: 1700-1800

REVIEWED BY (Signature) | DOCUMENT NO. | DAY: MONDAY | DATE: 17 June 1990

ACTIVITY: USS UNDERWAY | LEADING MESS MANAGEMENT SPEC. | REVIEWED & RECEIVED BY | REVIEWED & RECEIVED BY

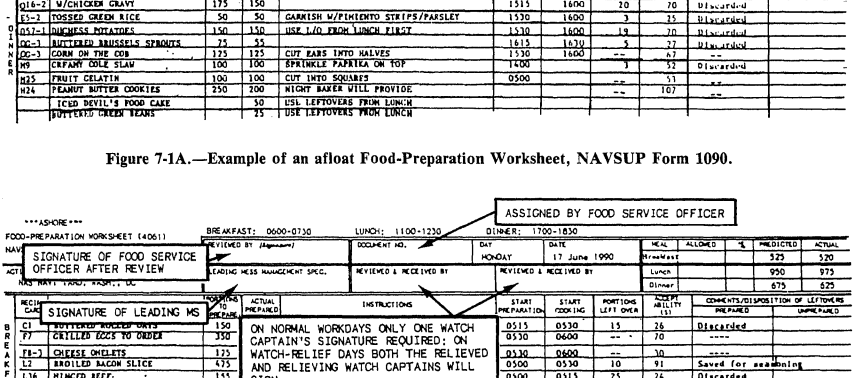
MEAL	ALLOWED	$	PREDICTED	ACTUAL
Breakfast	250		185	170
Lunch	250		240	245
Dinner	250		195	187

SIGNATURE OF LEADING MS

ON NORMAL WORKDAYS ONLY ONE WATCH CAPTAIN'S SIGNATURE REQUIRED: ON WATCH-RELIEF DAYS BOTH THE RELIEVED AND RELIEVING WATCH CAPTAINS WILL SIGN.

	RECIPE CARD	MENU ITEM	PORTIONS TO PREPARE	ACTUAL PREPARED	INSTRUCTIONS	START PREPARATION	START COOKING	PORTIONS LEFT OVER	KEEP ABILITY (D)	COMMENTS/DISPOSITION OF LEFTOVERS: PREPARED	UNPREPARED
	(1)			50		00	0530	5		Discarded	
BREAKFAST	F7	GRILLED EGGS TO ORDER	175	170		00	0600	--	95	--	
	F8-3	CHEESE OMELETS	50	50		00	0600	--	28	--	
	L2	BROILED BACON SLICES	150	145		30	0515	15	81	Saved for season veg. lunch	
	L36	MINCED BEEF	125	125		30	0515	8	65	Discarded	
	D23	FRENCH TOAST PUFF	75	75		30	0545	--	42	--	
	D18-7	GLAZED DOUGHNUTS	200	200	NIGHT BAKER WILL PROVIDE			--	112	--	
	CN	CHILLED ORANGE JUICE	200	150	CHILL OVERNIGHT/UTILIZE JET SPRAY			--	86	--	
*	AP	ASSORTED FRESH FRUITS	A/R		WASH THOROUGHLY BEFORE SERVING	0500		--	--	--	
*		See reverse for types & amts									
	P2-1	CHICKEN NOODLE SOUP	150	150	GARNISH W/CHOPPED PARSLEY	0930	1000	27	50	Discarded	
	L35	BAKED MEAT LOAF	150	125	SLICE ON THE LINE	0815	0845	2	50	Discarded	
	Q16	W/BROWN GRAVY	150	150		0930	1000	19	53	Discarded	
	L71	GRILLED HAM STEAKS	75	80	TOP W/PINEAPPLE SLICES/PARSLEY	1030	1045	--	33	--	
LUNCH	Q57	MASHED POTATOES	175	200	PREPARE IN 50 PORTION BATCHES	1015	1030	30	69	Saved for Dinner	
	Q67	CANDIED SWEET POTATOES	50	50	IN STEP 3 ADD 8oz MARAS. CHERRIES	0930	0945	--	20	--	
	QG-3	BUTTERED GREEN BEANS	165	150	ADD CHOPPED L/O BACON FROM BREAKFAST	1015	1030	25	51	Saved for Dinner	
	Q17	GLAZED CARROTS	75	75	GARNISH WITH PARSLEY	0945	1015	22	22	Discarded	
	M67	TOSSED GREEN SALAD W/ASSORTED	125	200	USE AVAILABLE FRESH VEGETABLES	0830	--	--	82	--	
*		SALAD DRESSINGS	A/R		HAVE 3 OR MORE KINDS AVAILABLE						
*	C12-3	ICED DEVIL'S FOOD CAKE	275	275	ICE W/BUTTER CREME ICING (G9)			50	92	Saved for Dinner	
		See reverse for types & amts									
	M4-1	FRENCH ONION SOUP	100	100	FOLLOW NOTE 2	1530	1600	--	53	--	
	L155	SOUTHERN FRIED CHICKEN	200	185	PAY PARTICULAR ATTENTION TO STEP 1	1330	1430	7	93	Saved in Cook's Mess	
	Q16-2	W/CHICKEN GRAVY	175	150		1515	1600	20	70	Discarded	
	E5-2	TOSSED GREEN RICE	50	50	GARNISH W/PIMIENTO STRIPS/PARSLEY	1530	1600	3	25	Discarded	
DINNER	Q57-1	DUCHESS POTATOES	150	150	USE L/O FROM LUNCH FIRST	1530	1600	19	70	Discarded	
	QG-3	BUTTERED BRUSSELS SPROUTS	75	55		1615	1630	5	27	Discarded	
	QC-3	CORN ON THE COB	125	125	CUT EARS INTO HALVES	1530	1600	--	67	--	
	M9	CREAMY COLE SLAW	100	100	SPRINKLE PAPRIKA ON TOP	1400		3	52	Discarded	
	N25	FRUIT GELATIN	100	100	CUT INTO SQUARES	0500		--	53	--	
	H24	PEANUT BUTTER COOKIES	250	200	NIGHT BAKER WILL PROVIDE			--	107	--	
		ICED DEVIL'S FOOD CAKE		50	USE LEFTOVERS FROM LUNCH						
		BUTTERED GREEN BEANS		25	USE LEFTOVERS FROM LUNCH						

Figure 7-1A.—Example of an afloat Food-Preparation Worksheet, NAVSUP Form 1090.



ASHORE

FOOD-PREPARATION WORKSHEET (4061)

ASSIGNED BY FOOD SERVICE OFFICER

BREAKFAST: 0600-0730 LUNCH: 1100-1230 DINNER: 1700-1830

REVIEWED BY (Signature) | DOCUMENT NO. | DAY: MONDAY | DATE: 17 June 1990

NAVS

SIGNATURE OF FOOD SERVICE OFFICER AFTER REVIEW

ACT

NAS NAVY YARD, WASH., DC | LEADING MESS MANAGEMENT SPEC. | REVIEWED & RECEIVED BY | REVIEWED & RECEIVED BY

MEAL	ALLOWED	%	PREDICTED	ACTUAL
Breakfast			525	520
Lunch			950	975
Dinner			675	625

SIGNATURE OF LEADING MS

ON NORMAL WORKDAYS ONLY ONE WATCH CAPTAIN'S SIGNATURE REQUIRED: ON WATCH-RELIEF DAYS BOTH THE RELIEVED AND RELIEVING WATCH CAPTAINS WILL SIGN.

	RECIPE CARD	MENU ITEM	PORTIONS TO PREPARE	ACTUAL PREPARED	INSTRUCTIONS	START PREPARATION	START COOKING	PORTIONS LEFT OVER	KEEP ABILITY (D)	COMMENTS/DISPOSITION OF LEFTOVERS: PREPARED	UNPREPARED
	C1	BUTTERED ROLLED OATS	150			0515	0530	15	26	Discarded	
BREAKFAST	F7	GRILLED EGGS TO ORDER	350			0530	0600	--	70	----	
	F8-3	CHEESE OMELETS	125			0530	0600	--	30	----	
	L2	BROILED BACON SLICE	475			0500	0530	10	91	Saved for seasoning	
	L36	MINCED BEEF	155			0500	0515	25	24	Discarded	
	D23	FRENCH TOAST PUFF	370			0530	0545	10	70	Discarded	
	Q44-2	HASH BROWN POTATOES	385	400	ENSURE GOLDEN BROWN	0515	0530	5	76	Discarded	
	P2-1	CHICKEN NOODLE SOUP	175	180	GARNISH W/CHOPPED PARSLEY	0930	1015	15	17	Discarded	
	L35	BAKED MEAT LOAF	530	524	SLICE ON THE LINE	0830	0900	2	54	Discarded	
	Q16	W/ BROWN GRAVY	475	475		0830	0930	25	46	Discarded	
	L71	GRILLED HAM STEAKS	325	320	TOP W/ PINEAPPLE SLICES/PARSLEY	1000	1045	16	31	4 Discarded - 12 Saved	
	Q57	MASHED POTATOES	550	550	START W/300 PORTIONS, THEN 50 EA.	1000	1030	12	55	Discarded	
LUNCH	Q67	CANDIED SWEET POTATOES	275	275	IN STEP 2 ADD 8oz MARAS. CHERRIES	0915	0945	3	28	Discarded	
	QG-3	GREEN BEANS	425	485	USE L/O BACON FROM BREAKFAST	1015	1030	7	49	Discarded	
	Q17	GLAZED CARROTS	200	225	GARNISH W/ CHOPPED PARSLEY	1000	1015	8	22	Discarded	
	P4-1	FRENCH ONION SOUP	115	115	FOLLOW NOTE 2	1445	1515	15	16	Discarded	
	L155	SOUTHERN FRIED CHICKEN	400	420	ENSURE STRICT PORTION CONTROL	1300	1345	20	64	Saved in Cook's Mess	
	Q16	W/ CHICKEN GRAVY	275	275	SEPARATE WHITE/DARK MEAT ON LINE	1445	1500	10	42	Discarded	
	L13	PEPPER STEAKS	250	270	IN STEP 6, SLICE THE ONIONS	1400	1500	--	43	----	
	E5-2	TOSSED GREEN RICE	200	222	GARNISH W/PIMIENTO STRIPS/PARSLEY	1530	1600	16	33	Discarded	
DINNER	Q57-1	DUCHESS POTATOES	250	250	SCOOP ON SHEET PANS BEFORE BROWNING	1530	1600	17	37	Discarded	
	QC-1	BUTTERED BRUSSELS SPROUTS	225	240	HAVE MELTED BUTTER AVAILABLE ON THE LINE, NOT ON SPROUTS	1615	1630	5	38	Discarded	
	QC-3	CORN ON THE COB	500	515	CUT EARS INTO HALVES	1545	1600	--	82	----	
		CHILLED HAM		12	CHOPPED, USE FOR GARNISH (SALAD)						

Figure 7-1B.—Example of an ashore Food-Preparation Worksheet, NAVSUP Form 1090.

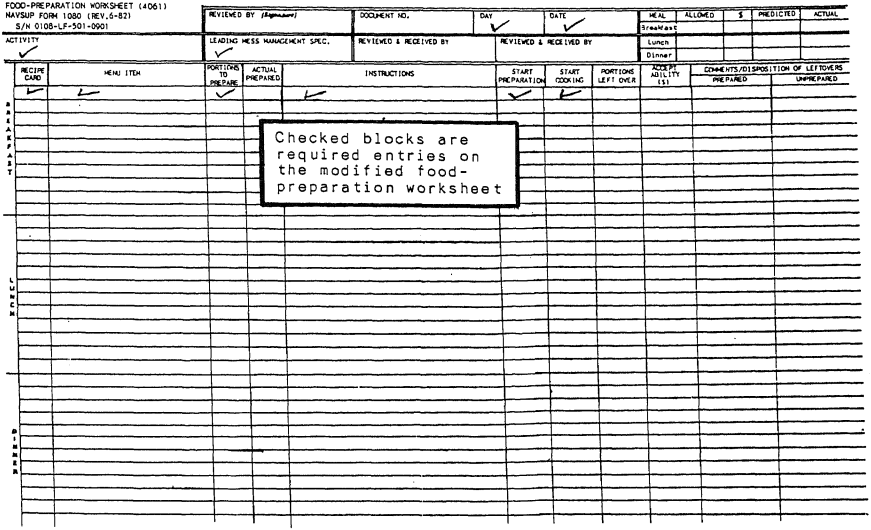


Figure 7-1C.—Required information on a modified Food-Preparation Worksheet.

- How-to-do-it line drawings

Standardized Recipes

All food should be prepared according to the recipes published in the AFRS or recipes that have been approved by the food service officer. Recipes in the AFRS are printed on 5- by 8-inch colored cards.

The use of standardized recipes ensures high quality in food preparation. It also eliminates guesswork and prevents variations in quality and quantity. The use of exact amounts of the various ingredients produces accurate yields, prevents leftovers, and promotes food cost control. The food items needed for the day's menu are requisitioned from the bulk issue room storekeeper by the watch captain.

YIELD.—Each recipe in the AFRS is designed to yield 100 portions; however, the yield of some recipes is given in numbers or volume; for example, 2 pans, 8 loaves, 6 1/2 gallons, and so forth, depending upon the food to be prepared.

INGREDIENTS.—Ingredients are listed in the order used. The specific form or variety of each ingredient is indicated; for example:

Flour, general purpose

Flour, bread

The shape, size, or form of an ingredient is specified; for example:

Ham, cooked, 1/2-inch cubes

Onions, dry, sliced

Nuts, unsalted, chopped

Temperatures of ingredients are specified in many recipes. Descriptive terms are also used; for example:

Egg whites (room temperature)

Liver, sliced, partially thawed

Water, warm (110°F)

MEASURES AND WEIGHTS.—Measures and weights are the exact amount of each

ingredient needed for 100 portions. Amounts are listed parallel to the list of ingredients. Quantities of dry ingredients weighing more than one-half ounce usually are given as both weights and measures. Most liquid ingredients are measured, not weighed.

On the right side of the Measures column, a blank space has been reserved for inserting the actual amounts of ingredients needed to prepare the number of portions the individual galley needs. These quantities may be inserted in pencil directly on the recipe card and then changed as necessary.

METHOD.—Method describes how the ingredients are to be combined and cooked and represents the best accepted cooking procedures. For example, the method will describe the best way to sift dry ingredients together, to thicken a sauce, or to fold in beaten egg whites. Methods are standardized since the same terms are used wherever the same technique appears. The method contains directions for the most efficient order of work, eliminating unnecessary tools and equipment and unnecessary steps in preparation.

The directions are stated in simple, clear terms for incorporating the ingredients. Each step begins with an action verb such as dissolve, divide, drain, sift, flatten, cover, pour, sprinkle, or bake. These words are the keys to proper procedures and should be closely followed.

Included under method are specific details such as cooking time.

If certain ingredients are to be set aside for later use, this is so stated. For example, "Gradually add sugar, beat to light, firm peak. Set aside for use in step 6."

ABBREVIATIONS.—The basic abbreviations used in the AFRS are as follows:

Volume:

tsp = teaspoon(s)
tbsp = tablespoon(s)
c = cup(s)
pt = pint(s)
qt = quart(s)
gal = gallon(s)

Ingredients:

A.P. = as purchased
E.P. = edible portion (for example, potatoes, peeled, prepared for cooking)

Temperature:

°F = degrees Fahrenheit

Weights:

oz = ounce(s)
lb = pound(s)

Containers:

cn = can(s)
cyl = cylinder(s)
jr = jar(s)

In a few instances, serving suggestions are included under method. For example, "Serve with lemon sauce (Recipe No. K-9) or, if desired, top with whipped cream (Recipe No. K-15)."

NOTES.—Notes appearing below the recipe contain supplemental information such as possible substitutions for ingredients. Specific techniques are included to supplement information contained in the Method column; for example, "If a candy thermometer is not available, heat mixture in step 1 until it forms a soft ball in cold water." Serving tips also may be included as notes; for example, "If desired, top with whipped cream (Recipe No. K-15) before serving." "In step 3, if convection oven is used, bake at 350°F for 20 to 25 minutes."

VARIATIONS.—Variations are included on many recipes. They describe different ways to prepare the product and constitute a major addition to the total number of recipes contained in the AFRS. Each variation is listed as a separate recipe in the index. For example, the recipe for yellow cake includes these variations: (1) banana-filled layer, (2) Boston cream pie, and (3) chocolate cream. The variations in this instance are named according to the principal ingredient that alters the basic recipe. In other recipes where different cooking techniques are used, these may determine the name of the variation.

Recipe Supplements

Recipe supplements are the written source that explains how to prepare certain types of basic food. Included as recipe supplements are guideline cards, index cards, and index of recipes.

GUIDELINE CARDS.—Guideline cards found in some of the recipe sections are directions

or preparing a basic type of food. For instance, a guideline card is used for the makeup of piecrust or a one-crust pie and a two-crust pie. This guideine card eliminates the need to repeat this informaion on the many different recipes using piecrust.

Guideline cards in the salad, fish, poultry, and egetable sections include breakout information nd the size, count, and recommended use of roducts. In other instances, a guideline card is sed instead of, or as a summary of, recipe infornation. For instance, in the Vegetable section uideline cards are included for preparing anned, fresh, and frozen vegetables.

INDEX CARDS.—Index cards are found at he beginning of each section and give a complete isting, in alphabetical order by type of food or ish, of all recipes contained in that section.

An additional breakdown of the index is given or recipe variations. For example, under Yellow ake, nine variations are listed alphabetically. ndexes are valuable tools for finding and using ppropriate recipes.

INDEX OF RECIPES.—The separate, consolidated index of recipes in the AFRS is a aluable reference for menu planners. The ecipes in this index are grouped conveniently as ollows:

A. General Information
B. Appetizers and C. Beverages
D. Breads and Sweet Doughs
E. Cereals and Pasta Products
F. Cheese and Eggs
G. Cakes, Fillings, and Frostings
H. Cookies
I. Pastry and Pies
J. Puddings and Other Desserts
K. Desserts (Sauces and Toppings)
L. Meat
L. Fish
L. Poultry
M. Salads
M. Salad Dressings and Relishes
N. Sandwiches
O. Sauces, Gravies, and Dressings
P. Soups
Q. Vegetables

The General Information section of the AFRS has guidelines for basic information. One of the first things you should do is become familiar with this section. Shown in figure 7-2 is a copy of the general information index card that lists the recipe card number by the basic information topic.

Recipe Adjustments

All the recipes contained in the AFRS are based on a standard of 100 portions. However, the number of patrons served per day (or per meal) changes constantly, requiring changes in the quantities of food being prepared. There are various types of recipe adjustments.

YIELD ADJUSTMENT.—To increase or decrease a recipe to obtain the desired number of portions, it is necessary to obtain a working factor. Multiply the quantity of each ingredient by the working factor and convert the quantity into a workable unit as follows:

Step 1. To obtain a working factor, divide the number of portions desired by 100.

Example:

$$\frac{348 \text{ (number portions desired)}}{100} =$$

3.48 (working factor) or

$$348 \div 100 = 3.48.$$

Step 2. To determine the quantity of each ingredient to use, multiply the quantity of each ingredient listed in the recipe by the working factor obtained in step 1.

Example:

1.25 cornstarch (quantity in recipe) × 3.48 (working factor) = 4.35 lb cornstarch (quantity to use).

QUANTITY ADJUSTMENT.—A recipe may be adjusted on the basis of the quantity of an ingredient to be used. To obtain a working factor, divide the number of pounds you have to use by the number of pounds required to yield 100 portions:

$$\frac{102 \text{ lb (quantity to be used)}}{30 \text{ (number pounds to yield 100 portions)}} =$$

3.40 (working factor) or

$$102 \div 30 = 3.40.$$

	Card No.
Basic Information	
Handling Frozen Foods, Guidelines for	A-19
Measuring Procedure	A-3
Terms Used in Food Preparation, Definitions of	A-2
Weight and Measuring Equivalents, Table of	A-4
Conversion Charts	
Can Sizes, Weights and Measures for	A-5
Container Yields, Canned Fruits, Guidelines for	A-9
Edible Portion Weights, As Purchased Weights	
Fruits	A-7
Vegetables	A-6

	Card No.
Conversion Charts—Continued	
Fruit Bars, Guidelines for	A-13
Measure Conversion	A-16
Metric Conversion, Guidelines for	A-27
Weight Conversion	A-15
Recipe Conversion	A-1
Equipment, Guidelines for	
Convection Ovens	A-23
Microwave Ovens	A-14
Steam Cookers	A-21
Steam Table, Baking and Roasting Pans, Capacities for	A-25
Tilting Fry Pans	A-24

(FRONT)

	Card No.
Ingredients	
Antibrowning Agent, Use of	A-20
Egg Equivalents, Table of	A-8
Flours, Guidelines for Use	A-18
Garlic, Dehydrated, Use of	A-17
Garnishes, Guidelines for	A-22
Green Peppers, Dehydrated, Use of	A-11
Horseradish, Dehydrated, Use of	A-17

	Card No.
Milk, Nonfat, Dry, Reconstitution Chart	A-10
Onions, Dehydrated, Use of	A-11
Parsley, Dehydrated, Use of	A-11
Soup and Gravy Bases, Reconstituting	A-12
Menu Planning	
Calories, Guidelines for	A-26

(BACK)

Figure 7-2.—General information index card (front and back).

Serving Size Adjustment

Recipes may be adjusted to yield a specific number of portions of a specific size as follows:

Step 1. Divide the desired portion size by standard portion of the recipe.

Example:

$$\frac{\text{3 oz (desired size)}}{\text{4 oz (standard portion size)}} = 0.75 \text{ (size factor) or}$$

$3 \div 4 = 0.75$.

Step 2. Multiply the number of portions needed by the size factor and divide the answer by 100 to obtain the working factor.

Example:

348 (number portions desired) × 0.75 (size factor) = 261.

$\frac{261}{100} = 2.61$ (working factor) or $261 \div 100 = 2.61$.

Step 3. Multiply the quantity of each ingredient in the recipe by the working factor to determine the quantity to use.

Example:

2 lb cornstarch (quantity in recipe) × 2.61 (working factor) = 5.22 lb cornstarch (quantity to use).

VOLUME ADJUSTMENT.—First obtain a working factor by dividing the number of servings needed by 100 as shown in step 2.

$333 \div 100 = 3.33$.

Then multiply the quantity of each ingredient by the working factor. You will round off to the nearest one-fourth teaspoon. For example, the recipe calls for 6 gallons of water per 100 portions. Portions to prepare are 333.

$333 \div 100 = 3.33$ working factor (w/f).

Step 1. w/f × gallons (recipe) = gallons to use

$$\begin{array}{r} 3.33 \text{ w/f} \\ \times 6 \text{ gl} \\ \hline 19.98 \text{ gl} \end{array}$$

Step 2. Decimal (of gal) × 4 = quart

$$\begin{array}{r} .98 \text{ gl} \\ \times 4 \text{ qt} \\ \hline 3.92 \text{ qt} \end{array}$$

Step 3. Decimal (of quart) × 2 = pint

$$\begin{array}{r} .92 \text{ qt} \\ \times 2 \text{ pt} \\ \hline 1.84 \text{ pt} \end{array}$$

Step 4. Decimal (of pint) × 2 = cup

$$\begin{array}{r} .84 \text{ pt} \\ \times 2 \text{ c} \\ \hline 1.68 \text{ c} \end{array}$$

Step 5. Decimal (of cup) × 16 = tablespoon

$$\begin{array}{r} .68 \text{ c} \\ \times 16 \text{ tbsp} \\ \hline 10.88 \text{ tbsp} \end{array}$$

Step 6. Decimal (of tbsp) × 3 = teaspoon

$$\begin{array}{r} .88 \text{ tbsp} \\ \times 3 \text{ tsp} \\ \hline 2.64 \text{ tsp} \end{array}$$

Step 7. Round off tsp decimal portion .64 tsp is equal to 3/4 tsp

Thus, the amount of water needed for 333 portions is 19 gl, 3 qt, 1 pt, 1 c, 10 tbsp, and 2 3/4 tsp.

CONVERTING AND ROUNDING CALCULATED QUANTITIES.—When a recipe is increased or decreased or ingredient quantities are altered, it is usually necessary to convert the amount calculated to another unit of measure because, in most instances, a part of a pound or a partial measure results. To obtain a usable figure, (a) round off the calculated figure given in decimal pounds or measures to a whole figure or (b) convert partial pounds into ounces and the partial measures into smaller units; for example, partial quarts into cups.

CONVERTING FRACTIONAL WEIGHTS.—When increasing or decreasing recipes, the division or multiplication of pounds and ounces is expressed as decimals to simplify cumbersome fractions. For example, if the quantity of an ingredient is multiplied by a working factor, the calculation is as follows:

1.25 lb × 3.48 (working factor) = 4.35 lb.

The quantity, 4.35 pounds, could be expressed by converting the fractional part of the pound into ounces (see fig. 7-3).

Another means of converting fractional parts of a pound is to make the calculation instead of consulting the conversion table. The part of the pound is converted to ounces by multiplying the figure by 16 ounces.

For example: 0.35×16 oz $= 5.60$ oz.

ROUNDING OFF WEIGHTS.—After the part of the pound has been converted to ounces (0.60), as indicated in the Recipe Conversion Card A-1(1), decimals may be rounded off to provide whole units of weights or measure. Round off decimal weights as follows:

Decimal	Round to
0.01 to 0.12	0.00 or 0 oz
0.13 to 0.37	0.25 or 1/4 oz
0.38 to 0.62	0.50 or 1/2 oz
0.63 to 0.87	0.75 or 3/4 oz
0.88 to 0.99	1.00 or 1 oz

Using the example given above, the 4.35 pounds (or 4 pounds 5.60 ounces) would be rounded to 4 pounds 5 1/2 ounces.

ROUNDING OFF VOLUME MEASURES.—When converting volume measures, rounding off is also necessary. Round off volume measures as follows:

Calculated volume measure	Round to
5 gal or more	Closest full qt
5 1/4 qt to 4 3/4 gal	Closest full cup
5 1/4 cups to 5 qt	Closest full 1/2 cup
2 3/4 to 5 cups	Closest full 1/4 cup

If the quantity being measured is less than a quart, it is more practical to adjust the volume to tablespoon and teaspoon measures as follows:

Calculated volume measure	Round to
1 1/4 to 2 1/2 cups	Closest tbsp
9 tbsp to 1 cup 3 tbsp	Closest tsp

To convert volume measures from gallons, quarts, cups, tablespoons, and teaspoons, see figure 7-4.

Weighing, Measuring, and Obtaining Temperatures

The equipment used to weigh and measure ingredients accurately is easy to use and is explained next.

Even Balance Scale

The even balance scale (fig. 7-5) is normally used to weigh solid and dry ingredients before mixing. It may also be used to weigh products shaped or formed during preparation to ensure portion control.

Figure 7-5 also shows the parts of the even balance scale. These parts are explained as follows:

1. The stand (or base) supports the entire mechanism.
2. The weight plate is where the counterweights are placed for weighing ingredients.
3. The location of the slide bar and the scoop plate.
4. The scoop holds ingredients being weighed. The scale must be balanced to the scoop (as explained below).
5. The slide bar is divided into 1/4-ounce increments.
6. The basic scale, with scoop, can weigh amounts from 1/4 ounce to 16 ounces.
7. Counterweights placed on the weight plate when weighing more than 16 ounces come in 1- , 2- , and 4-pound sizes. Maximum capacity of the scale with counterweights is 8 pounds.

BALANCING THE SCALE.—The procedures used to balance the scale are as follows:

1. Place scale on a level surface; then add scoop.
2. Move the slide bar weight completely to the left.
3. Balance the scale to the scoop. If the scale is badly out of balance, lead pellets should be added beneath the weight plate.

USING THE EVEN BALANCE SCALE.—

POUNDS—DECIMALS—GRAMS—OUNCES 453.59 GRAMS = 1 LB

Pounds	Decimal	Grams	Ounces	Pounds	Decimal	Grams	Ounces	Pounds	Decimal	Grams	Ounces	Pounds	Decimal	Grams	Ounces
1/128	0.007813	3.54	1/8	1/4	0.250000	113.40	4	1/2	0.500000	226.80	8	3/4	0.750000	340.19	12
1/64	.015625	7.09	1/4	17/64	.265625	120.48	4 1/4	33/64	.515625	233.88	8 1/4	49/64	.765625	347.28	12 1/4
1/32	.031250	14.17	1/2	9/32	.281250	127.57	4 1/2	17/32	.531250	240.97	8 1/2	25/32	.781250	354.37	12 1/2
3/64	.046875	21.26	3/4	19/64	.296875	134.66	4 3/4	35/64	.546875	240.86	8 3/4	51/64	.796875	361.45	12 3/4
1/16	.062500	28.35	1	5/16	.312500	141.75	5	9/16	.562500	255.14	9	13/16	.812500	368.54	13
5/64	.078125	35.44	1 1/4	21/64	.328125	148.83	5 1/4	37/64	.578125	262.23	9 1/4	53/64	.828125	375.63	13 1/4
3/32	.093750	42.52	1 1/2	11/32	.343750	155.92	5 1/2	19/32	.593750	269.32	9 1/2	27/32	.843750	382.72	13 1/2
7/64	.109375	49.61	1 3/4	23/64	.359375	163.01	5 3/4	39/64	.609375	276.41	9 3/4	55/64	.859375	389.80	13 3/4
1/8	.125000	56.70	2	3/8	.375000	170.10	6	5/8	.625000	283.49	10	7/8	.875000	396.89	14
9/64	.140625	63.79	2 1/4	25/64	.390625	177.18	6 1/4	41/64	.640625	290.58	10 1/4	57/64	.890625	403.98	14 1/4
5/32	.156250	70.87	2 1/2	13/32	.406250	184.27	6 1/2	21/32	.656250	297.67	10 1/2	29/32	.906250	411.07	14 1/2
11/64	.171875	77.96	2 3/4	27/64	.421875	191.36	6 3/4	43/64	.671875	304.76	10 3/4	59/64	.921875	418.15	14 3/4
3/16	.187500	85.05	3	7/16	.437500	198.45	7	11/16	.687500	311.84	11	15/16	.937500	425.24	15
13/64	.203125	92.14	3 1/4	29/64	.453125	205.53	7 1/4	45/64	.703125	318.93	11 1/4	61/64	.953125	432.33	15 1/4
7/32	.218750	99.22	3 1/2	15/32	.468750	212.62	7 1/2	23/32	.718750	326.02	11 1/2	31/32	.968750	439.42	15 1/2
15/64	.234375	106.31	3 3/4	31/64	.484375	219.71	7 3/4	47/64	.734375	333.11	11 3/4	63/64	.984375	446.50	15 3/4
												1	1.000000	453.59	16

NOTE: Blocked-in figures, namely 1, 2, 4, 6, 8, 10, 12, 14, and 16 oz and their equivalent values should be memorized.

Figure 7-3.—Converting fractional weights.

GALLONS	QUARTS	PINTS	CUPS	FLUID OUNCES	TABLESPOONS	TEASPOONS
1.00	4.0	8.0	16.0	128.0	256.0	768.0
.50	2.0	4.0	8.0	64.0	128.0	384.0
.25	1.0	2.0	4.0	32.0	64.0	192.0
.12	.5	1.0	2.0	16.0	32.0	96.0
.06	.25	.5	1.0	8.0	16.0	48.0
. . . .	.125	.25	.5	4.0	8.0	24.0
. . . .	. . . .	.125	.25	2.0	4.0	12.0
. . . .	. . . .	. . . .	.125	1.0	2.0	6.0
. . . .	. . . .	. . . .	. . . .	.5	1.0	3.0
. . . .	. . . .	. . . .	. . . .	. . . .	.33	1.0

Figure 7-4.—Equivalents of volume measurements.

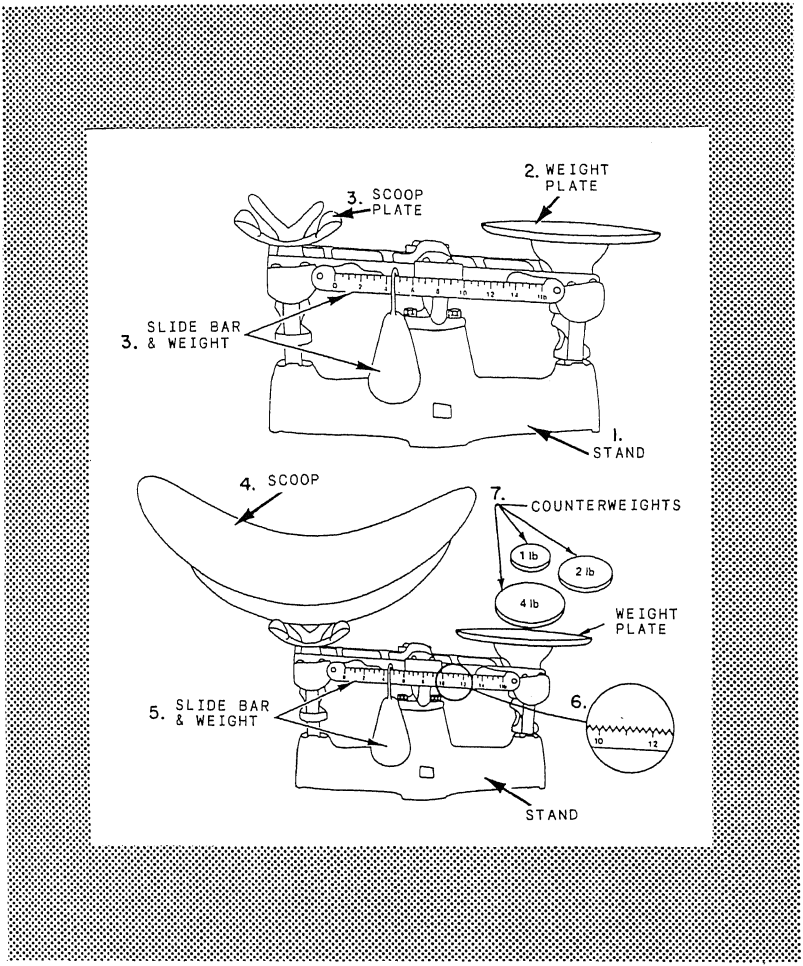


Figure 7-5.—Even balance scale.

2. Add weights, as required, to weight plate of scale.
3. Adjust slide as required.
4. Place ingredients on wax paper until scale balances.
5. Remove wax paper with ingredients from the scoop and set it aside.

CARE OF THE SCALE.—Wipe the scale with a damp cloth or sponge. Never put the

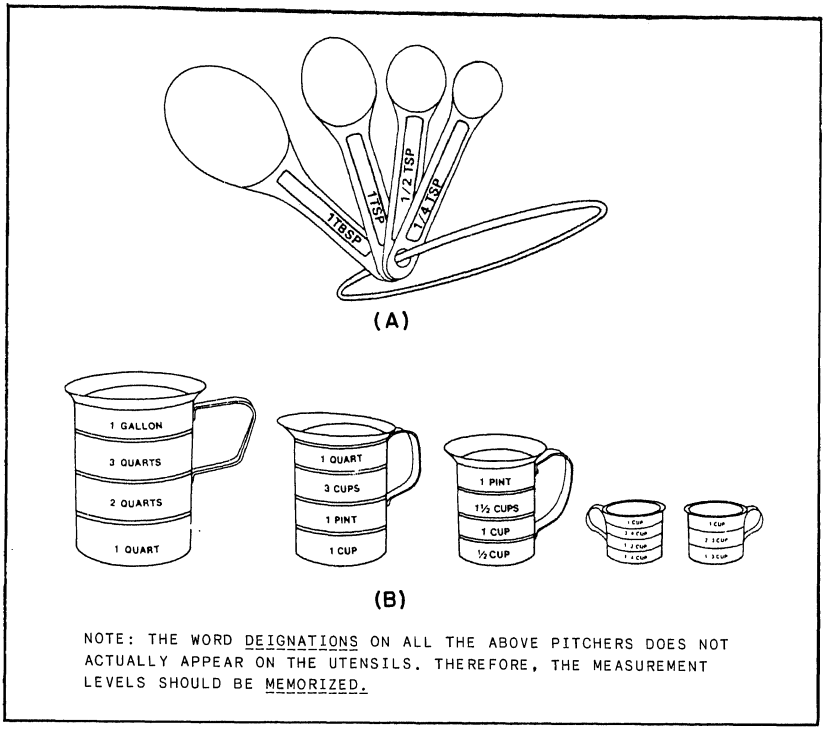


Figure 7-6.—Measuring utensils (views A and B).

entire scale into the deep sink because it will eventually rust.

Measuring Utensils

Measuring utensils include both measuring spoons and volume measuring pitchers. Measuring spoons (fig. 7-6, view A) are used for both liquid and dry ingredients and come in four basic sizes. Measuring pitchers (fig. 7-6, view B) also come in four basic sizes (gallon, quart, pint, and cup) and are described as follows:

1. The 1-galion measure is used mostly for liquids. Markings go completely around the utensil in 1-quart increments.
2. The 1-quart measure is used mostly for liquids. Markings go completely around the utensil in 1-cup increments.
3. The 1-pint measure is used mostly for liquids. Measurement markings go completely around the utensil in 1/2-cup increments.
4. The 1-cup measure is used for both liquid and dry ingredients. Measurement markings are on both sides.
   a. One side is marked in 1/4-cup, 1/2-cup, 3/4-cup and 1-cup increments.
   b. The other side is marked in 1/3-cup, 2/3-cup and 1-cup increments.

Measuring utensils are accurate and easy to use. However, they must be used properly to obtain

high-quality products. Figure 7-7 shows the measurement equivalents for both types of measuring utensils.

USING MEASURING SPOONS.—To use measuring spoons proceed as follows:

1. Fill required spoon with the ingredients to be measured.
2. Heap (overfill).
3. Level with the flat edge of a knife.
4. If the ingredient is a liquid, the spoon should be filled level.

USING THE CUP, PINT, QUART, AND GALLON MEASURING PITCHERS.—The proper method of using these measuring utensils is as follows:

1. Fill the required utensil to the desired quantity mark.

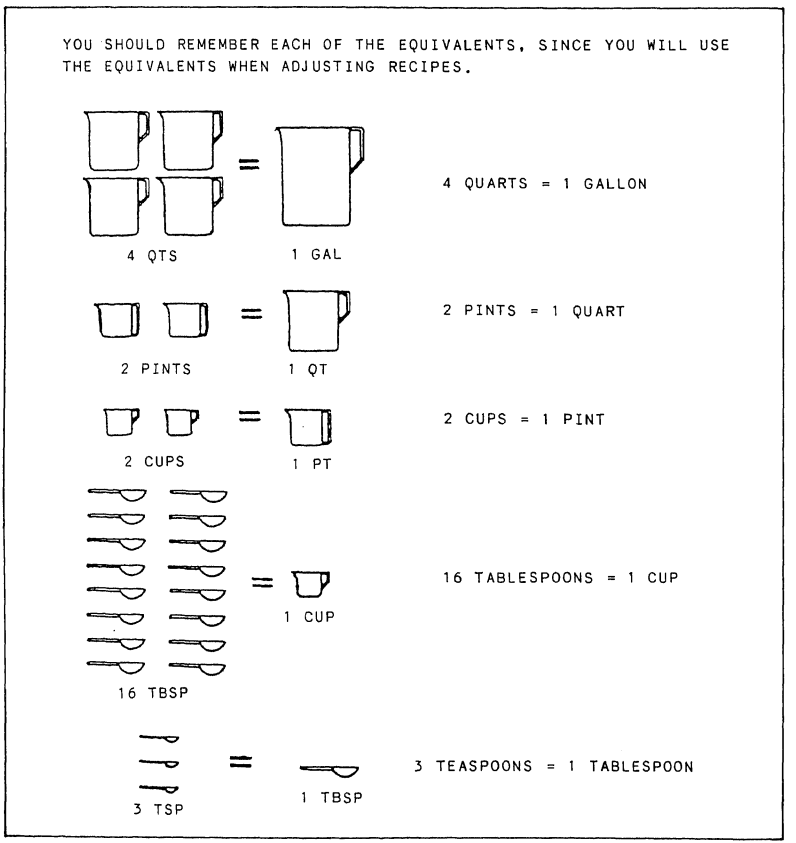


Figure 7-7.—Equivalents of measures.

2. Place the container on a level surface to check the accuracy of the measure.

Thermometers

Observing time and temperature is a fundamental and very important aspect of cooking. To assist the MS with this process, there are many types of thermometers. Six types are generally used in food production in general and private messes.

CANDY THERMOMETERS.—Candy thermometers are used principally for cooked frostings. They help maintain close control of temperature in all sugar cooking and are the key to making excellent products.

DEEP-FAT FRYING THERMOMETER.—Deep-fat frying thermometers are used to verify fat temperatures in thermostatically controlled fry kettles or are used to measure fat temperature in fry kettles without thermostatic controls. Combination deep-fat and candy thermometers may also be used for this purpose. Candy and deep-fat frying thermometers are equipped with a clip-on device to attach the thermometer to the pan.

MEAT THERMOMETERS.—Meat thermometers (dial roast meat type) are designed to use with roast meats of all types (beef, veal, lamb, and pork) and with poultry. Thermometers of this type, inserted deeply into the muscle, register an accurate inner temperature indicating the degree of doneness of the meat.

OVEN THERMOMETERS.—Oven thermometers provide an accurate check on installed thermostats and can locate "hot" or "cold" spots in the oven. If the oven lacks a thermostat, the oven thermometer may be used to determine temperature.

DOUGH THERMOMETERS.—Dough thermometers are essential to the production of satisfactory yeast-raised products. Dough testing requires the use of a thermometer specially made for this purpose.

GRILL THERMOMETERS.—Grill thermometers are used to determine grill temperature.

FOOD COOKERY

Cookery is the art of preparing food in such a way that it will appeal to the eye, be tasty, be easily digested, and furnish nourishment.

SANITARY ASPECTS

Every precaution should be taken in the handling of food to prevent contamination. The following paragraphs explain the procedures that must be followed during the preparing and handling of food.

Safe Handling Temperatures for Cooked Foods

Protein foods that are not served immediately after they are cooked must be either chilled to temperatures of 40 °F and lower (but not frozen) or held at 140 °F and higher. Protein foods include meats, fish, poultry, gravies, meat stock, soups, eggs, custards, cream fillings, and milk.

Cooked protein foods that have been held at temperatures between 40 ° and 140 °F for more than 3 hours should be considered unsafe for consumption and discarded. The exception to this rule is reconstituted dehydrated egg mix. Reconstituted egg mix, if not used immediately, must be placed in a tightly covered container in the refrigerator and used within 1 hour. If foods are refrigerated at intervals and then intermittently permitted to warm up, the total time of the various periods between 40 ° and 140 °F must not exceed 3 hours. Protein foods composed of ingredients that are hand-peeled, hand-sliced, or hand-diced after they are cooked should never be used as leftovers. The 3-hour limit between temperatures of 40 ° and 140 °F is usually taken up in preparing, chilling, and serving these foods. Such foods include, but are not necessarily limited to, potato, chicken, turkey, macaroni, shrimp, and egg salads. Hand preparation not only increases the chances of contamination, but also increases the length of time that these foods have been held at room temperature.

You should not return opened jars or bowls of mayonnaise and cooked salad dressings from salad bars to refrigerators for reuse at a later meal because of the danger of miscalculation of total lapsed time that these salad dressings have been held at temperatures between 40 ° and 140 °F. Instead, mayonnaise and cooked salad dressings should be placed on the salad bar in small quantities and must not be returned from the salad

bar for reuse. If economically feasible, individual packets/servings of items such as catsup, mustard, mayonnaise, and so forth, should be used on the salad bar. This will prevent waste and be more sanitary.

Care of Leftovers

When leftovers or warm foods are chilled, care should be taken to ensure prompt and thorough chilling (40 °F or below) to the center of the food mass. Foods that are to be refrigerated should be placed in shallow pans to a depth of not more than 3 inches and should be covered with lids or waxed paper. Large deep pans must not be used since the center of the food may remain warm long enough to permit the growth of harmful bacteria. Foods to be chilled must be placed in the chill box immediately and the containers labeled with the time and date of preparation. Do not save leftovers for more than 36 hours. Freezing leftovers is prohibited.

Ground Foods

Food that has been ground or chopped should be refrigerated immediately if it is going to be cooked later or incorporated in a prepared dish. Such ground or chopped food should be refrigerated in shallow pans filled to a depth of not more than 3 inches. Cover the food until it is to be cooked.

Meats

Meats that are cut, sliced, or diced should be placed in shallow containers, covered with lids or waxed paper, and refrigerated immediately.

Reconstituted Dehydrated Foods

Dehydrated foods are just as susceptible to spoilage after they are reconstituted as fresh items. Always follow the methods for reconstitution and use of dehydrated foods as prescribed in the AFRS.

Thawing Methods for Frozen Meats

Frozen meat may be thawed in several ways. The preferred method is slow thawing because there is less drip loss in the meat. Meat thawed slowly yields a juicier and more palatable cooked product. On small ships with limited chill space, or whenever time is limited between meat issue and mealtime, slow thawing is not practical. An alternate method is recommended for such circumstances.

Once meat has been defrosted or thawed, it should be used as soon as possible and not refrozen. Breakouts should not exceed the amount to be served.

PREFERRED THAWING METHOD.—Break out the quantity of meat required. Remove it from the shipping container, but leave the meat inside the wrappings. Thaw slowly at temperatures between 36° and 38 °F until almost completely thawed. The thawing period will vary according to the following conditions:

1. Size of the meat cut—the larger the size, the longer the time required.
2. Bone-in or boneless state. Bone-in meat takes less time to thaw.
3. Air temperature and circulation in chill space. Moving air accelerates thawing.
4. Quantity of meat being thawed in a given area. A large amount will lower the temperature of the room and decrease the thawing action. Spread the cuts out. Do not stack them. It is almost impossible to predict the exact time required to thaw meat unless there is a perfectly controlled set of circumstances. Frozen wholesale beef cuts and frozen boneless beef may require up to 48 hours to thaw at temperatures of 36° to 38 °F. Cuts from pork, veal, and lamb would probably thaw in about 24 hours under refrigerator temperatures.

ALTERNATE THAWING METHOD.—If it should become necessary to thaw the frozen meat quickly, it should be allowed to thaw in the original unopened container at room temperature (72 °F) for several hours. The container acts as a refrigerator, allows the meat to thaw from the outside toward the center of the package. The outside pieces remain sufficiently cold to prevent spoilage while the center is thawing.

MISCELLANEOUS COOKING AND FOOD PREPARATION FUNDAMENTALS

This section provides information on food types, methods of cooking, and specific preparation techniques that may be used to produce high-quality products. Soups will be considered first.

Soup

Soup is a tasty, popular food. It is nutritious, wholesome, and stimulates the appetite. Soup should be served at least once a day in cold weather, if practical, and at least every few days regardless of the weather. A key rule in serving soup is that it be served as hot as possible.

Galley-Produced Soups

There are four basic kinds of soup:

1. Light soups are made from clear, unthickened stock.
2. Heavy soups are made from stock, vegetables, rice, or pasta such as noodles, macaroni, and spaghetti.
3. Cream soups are made with milk, stock, or vegetables and lightly thickened. They should be heated to serving temperature, but never allowed to boil.
4. Chowders are made with fish, shellfish, or vegetables.

BASIC SOUP INGREDIENTS.—There are three basic soup ingredients: stock, vegetables, and thickeners. These basic ingredients will be discussed next.

STOCK.—Stock is made by cooking meat bones, poultry bones and trimmings, vegetables, and seasonings. Alternately, it is made by using dehydrated soup and gravy base, which saves time, labor, and space. These various bases contain salt; therefore, the amount of salt added should be determined by careful tasting during the cooking process.

The standard stock items, instant beef, chicken, or ham soup and gravy base, may be reconstituted for use in any soup recipe. These powdered bases are seasoned and when they are reconstituted in boiling water they have the characteristic flavor of beef, ham, or chicken broth. The proportions that should be used to reconstitute these bases are included in the A (miscellaneous) section of the recipe service.

VEGETABLES.—The vegetables most commonly used for soups are celery, carrots, beans, peas, green peppers, onions, and tomatoes. Vegetables are cut into small cubes, or into matchlike strips that are called julienne. according to the instructions given in the AFRS for soup.

The dehydrated vegetables such as parsley, onions, green peppers, and potatoes may be used in soups. It is not necessary to reconstitute them first; they may be added directly to the product being prepared.

THICKENERS.—Soups are thickened by adding a roux or a paste. A roux is a mixture of fat and flour. A cold, light roux is usually added to soups that are to be thickened. In onion soup, for example, the cold roux is stirred into the hot soup stock and the soup is cooked until no taste of raw starch remains. Roux may be prepared ahead of time and refrigerated. A roux may be prepared by two methods: the cold roux method or the warm roux method. Cold roux is prepared by combining flour with liquid fat, then stirring until a smooth paste is formed. In the warm roux method, the fat is first melted over low heat and then the flour is added.

A paste is prepared by whipping flour or cornstarch into a cold liquid (usually water) and then adding it to hot liquid that is cooked until it thickens. In the final step of preparing bean soup, for example, a flour and water paste is stirred into the soup which is then cooked for 10 minutes.

PREPARATION TECHNIQUES.—Vegetables should be added to soups at the times specified in the recipe. Overcooking will spoil the flavor and appearance.

Tomatoes should be added slowly to soups containing milk, and the mixture should be stirred constantly to avoid curdling. Other cooking tips are as follows:

- Do not boil soups.
- Do not overcook.
- Never add a dry starch (flour or cornstarch) directly to a hot liquid.
- Cook cream soups until they coat the back of the stirring spoon or paddle.

SEASONING SOUPS.—The individual recipe in the Soup section specifies the types and amounts of seasonings that should be used. When

fore, it is essential to use accurate amounts of the ingredients. Just before the soup is to be served, check it again for proper seasoning. It is better to add more seasoning to the stock or soup a short time before it is served, rather than have a soup so highly seasoned it is unpalatable. If the taste check indicates that the soup is too salty, add sliced raw potatoes to the soup, bring soup to a simmer for a few minutes, then remove the potatoes.

COMMERCIALLY PREPARED SOUPS.—Dehydrated, instant, condensed, and ready-to-serve soups are not only easy to prepare but they are also time- and space-savers.

Dehydrated soups such as chicken noodle, green pea, and tomato vegetable are prepared by merely adding the specified amount of boiling water. Then the mixture is covered and allowed to simmer for the length of time specified on the container. The finished product is similar in appearance and flavor to the same type of soup made with raw food items.

Condensed soups are heated after water or milk is added. The ready-to-serve soups require no additional liquid before heating.

Types of Sauces

Sauces add to the appearance and flavor of food, but they should never be overpowering. Sauces should be handled carefully to avoid contamination and food-borne illness. Store in a chill space and never hold them longer than 3 cumulative hours at temperatures between 40° and 140°F.

CREAM OR WHITE SAUCE.—Cream or white sauces are made with butter, flour, and milk and have many variations. These sauces must be cooked over low heat. They required constant stirring to avoid scorching. The sauce is cooked until it coats the back of the spoon.

Thin and medium white sauces are used to bind ingredients together in scalloped meat, fish, egg, and vegetable dishes. Medium white sauce may also be served over food.

BUTTER SAUCES.—A white sauce with a high percentage of butter and little or no seasoning other than salt is considered a butter sauce. This sauce is used principally with green vegetables, such as asparagus and broccoli, and with fish and shellfish.

the Vegetables section of the AFRS. One example is broccoli Polonaise. Polonaise sauce is made from bread crumbs lightly browned in butter and garnished with chopped, hard-cooked eggs. Polonaise sauce may also be served with cauliflower.

SWEET SAUCES.—Sweet or dessert sauces give a delightful finishing touch to dessert dishes. A wide variety of desserts are possible by combining the various sauces with puddings, cake, fruit, and ice cream. Many dessert sauces are named for the chief flavoring ingredient, such as butterscotch, lemon, nutmeg, orange, and vanilla sauces. These sauces are made principally from pregelatinized starch or cornstarch, sugar, water, butter, salt, and the flavoring agent. Occasionally, milk and eggs are used in the preparation.

OTHER SAUCES.—Sauces served with meat, chicken, seafood, omelets, and spaghetti are prepared according to recipes in the AFRS. Also, commercially prepared sauce mixes are available. These include basic tomato, cheese, barbecue, taco, and enchilada sauces. Directions for use are found on the containers. Some examples of sauces and their uses are as follows:

Sweet, thickened:

Raisin	Baked ham
Pineapple	Baked ham

Unsweetened, thickened:

Hot mustard	Ham
Tomato	Veal steaks
	Stuffed green peppers

Uncooked, unthickened:

Tartar	Seafood
Seafood cocktail	Seafood

Cooked, unthickened:

Barbecue	Beef, pork
Spaghetti	Spaghetti

Types of Gravies

Any gravy served should go with the food it is intended to compliment. The O section of the recipe service contains many recipes to be served with meat and poultry. There are numerous types of gravies.

THICKENED GRAVY.—Thickened gravies are made by adding flour to the pan drippings left after roasting and browning meats. This flour mixture forms a roux that is then added to stock. The gravy is stirred and simmered until the mixture thickens. A good gravy should be as smooth as cream.

CREAM GRAVY.—Cream gravies are made by adding milk to the roux instead of stock or water. Cream gravy is usually served with chicken or ham.

NATURAL PAN GRAVY.—Natural pan gravy (au jus) is unthickened gravy that is usually served with roast beef. Water or stock is added to the meat drippings and the gravy is allowed to simmer until hot.

BROWN GRAVY.—Brown gravy is prepared by cooking the flour and fat mixture (roux) until it is brown. Brown gravy is the basic gravy used to make giblet, mushroom, onion, and vegetable gravies. Brown gravy mix is a dry mix that requires only the addition of hot water.

Gravy Preparation

Thickeners, liquids, fats, and seasonings are combined to form gravies. Certain tips will assist you in preparing and serving gravies.

THICKENERS.—To make smooth gravy, a roux must be used for thickening. Flour or other starch will form lumps if added directly to hot liquid. To make brown gravy, the flour and fat mixture (roux) is cooked until it is a rich, brown color. The roux is added to the hot stock and the mixture is simmered until it is thickened. To make cream gravy, the roux is cooked, but not browned. The roux is added to milk or light stock and cooked until thickened and no taste of the starch remains.

LIQUIDS.—If a large amount of gravy is prepared, there should be enough stock to ensure a good flavored gravy. Tomato juice or the liquid saved from mild-flavored cooked or canned vegetables (beans, peas, carrots) can be substituted for part of the water. Reconstituted soup and gravy base can be substituted for all or part of the stock. Since salt is an ingredient in these bases, no additional salt is added until cooking is completed. The gravy should then be tasted and salt added only if necessary.

FATS.—Fat from the pan drippings provides flavor. If there is not enough fat remaining in the pan from the meat to make a sufficient quantity of gravy, melted shortening can be added.

SEASONINGS.—Seasoning the gravy is important. Avoid overseasoning. Add salt and pepper in moderate amounts and taste the gravy during preparation to see if more is needed.

PREPARATION AND SERVICE TIPS.—If lumps should occur when you are making gravy, strain the gravy or whip vigorously with a wire whip.

If gravy is not to be served immediately, cover the pan and keep it hot; or it may be refrigerated and reheated when ready to use. Gravy should be handled carefully to avoid contamination and food-borne illness. Store it in a chill space and never hold gravy longer than 3 cumulative hours at temperatures between 40° and 140°F.

Vegetables

Vegetables of all types are nutritional necessities in a well-balanced diet. In addition to the contribution of important minerals and vitamins, vegetables add color, flavor, and interest to meals. All too frequently, vegetables are rejected or left uneaten when they are poorly cooked; consequently, they are not pleasing in appearance or flavor. A vegetable can become unpopular simply from being overcooked, watery, or poorly seasoned. Furthermore, the food value may be lost or diminished by improper handling and cooking.

Types

Vegetables are bought by the Navy in the following forms: canned, dehydrated, frozen, fresh, and dried.

CANNED VEGETABLES.—Vegetables that are canned have been cooked in the container and need only to be brought to the boiling temperature just before they are served. Never boil a canned

vegetable; always avoid overheating or overcooking. The liquid from canned vegetables should be saved and used in soups, sauces, or gravies. Follow the AFRS guidelines for heating canned vegetables.

DEHYDRATED VEGETABLES.—Dehydrated vegetables are now widely used and popular in Navy messes. Their small weight and volume make them convenient to store. They are easy to prepare. All the precooking tasks associated with raw vegetables have been done for you. They are peeled, diced, sliced, or chopped, and ready to use. They eliminate waste and ensure portion control.

The aim in dehydrating is to remove most of the water from the food—sometimes 99 percent of it—without damaging the product. In packaging, desiccation sometimes is used to remove the remaining amount of water from dehydrated foods. A small envelope containing a chemical (activated lime) is put into the final package. It absorbs water from the food during storage. Be sure to discard the desiccant bag.

Precooked potato granules, sliced raw potatoes, raw cabbage, chopped onions, and green peppers are some of the dehydrated vegetables used by the Navy. They are reconstituted by adding a measured quantity of the vegetable to a measured volume of water. The temperature of the water will vary (lukewarm or cool) with the specific dehydrated vegetable being reconstituted as will the length of time required for the reconstituting process (15 to 30 minutes). Recipes in the Q (vegetable) section of the recipe service give more detailed instructions for reconstituting dehydrated vegetables.

FROZEN VEGETABLES.—Frozen vegetables have the appearance and very nearly the flavor of fresh vegetables. Like the dehydrated vegetables discussed previously, they are easy to prepare; the precooking tasks have been done. Frozen vegetables have been cleaned and trimmed and are ready to use.

To preserve the quality, palatability, and acceptability of frozen vegetables they must be handled carefully. They must be kept at 0°F until they are to be used. Partial thawing of frozen vegetables before they are cooked is not necessary, except for those listed in Q-G-3 of the AFRS, as this lowers the quality, and once partially or fully thawed, they must be used immediately and must not be refrozen. Section Q-G-3 of the recipe service prescribes the methods and times for cooking frozen vegetables. Some frozen vegetables may be added directly to boiling water in their frozen state; others should be partially thawed. When the guidance card specifies that a vegetable, spinach for example, should be partially thawed before cooking, the frozen spinach should be removed from the freezer and placed in the chill box in its original container until partial thawing has been accomplished.

DRIED VEGETABLES.—A variety of dried vegetables are used in Navy messes. Dried beans and peas are used in soups and entrees (supplemented with meats such as ham, bacon, or ground beef as in chili con carne). Dried garlic is used as seasoning. Dry onions are used extensively in salads and cooking.

PREPARING FRESH VEGETABLES FOR COOKING.—Most raw fresh vegetables have waste or portions that are not edible. When you peel, scrape, brush, trim, or cut these vegetables, it is important not to destroy or damage edible portions and, especially, not to lose the valuable nutritional elements that are usually contained close to the outer skin or peel. Select vegetables about equal in size, or cut them into pieces of equal size. Then all the pieces will be cooked uniformly in the same length of time. Plan for cooking vegetables with the peel on whenever possible, especially potatoes. If potatoes must be peeled, do it very carefully so as to make thin peelings. Much of the food value in a potato lies close to the skin.

WASHING.—WASH ALL FRESH VEGETABLES THOROUGHLY. Use a brush to clean celery, carrots, beets, potatoes, turnips, parsnips, or any vegetable that is pulled or dug from the soil. Tightly grown blossoms, heads, or stem-type vegetables, such as asparagus, broccoli, cabbage, cauliflower, and brussels sprouts, will harbor worms and insects that may not be dislodged by casual washing. Soak vegetables of this type in cold salt water (1 tablespoon salt to 1 quart of water) for 1/2 to 1 hour and then rinse thoroughly. Turn califlower blossoms end down in the soaking water; cut cabbages in halves or quarters and remove the cores.

Wash the leaf-type vegetables such as spinach, collards, kale, and turnip greens in several changes of cold water to remove dirt and sand particles. Lift these vegetables from the water instead of draining the water off. The dirt and grit will remain in the washing pan or sink. If this water

is drained or poured off, the dirt will remain on the vegetables.

RETAINING OR RESTORING FRESHNESS.—After vegetables have been washed clean, keep them in a cool storage place until they are to be prepared.

Wilted vegetables can be refreshened by placing them in ice-cold water to which one-half cup of vinegar per gallon of water has been added. When they are freshened, the vegetables should be covered with a clean, damp cloth and placed in a cool storage room until you are ready to use them.

Keep the time between preparation and cooking as short as possible. Valuable vitamins are lost when vegetables are soaked too long or are allowed to remain at warm temperatures for several hours.

Cooking Vegetables

Vegetables may be baked or sauteed; they may be simmered or steamed; they may be served with butter or covered with an appropriate sauce; or, after they are simmered or steamed, they may be creamed, mashed, or sauteed.

The basic methods of cooking vegetables are baking, steaming, and simmering.

BAKING.—Cook the vegetables in dry heat in an oven with the addition of little or no water. Dry baking is usually limited to potatoes and squash.

STEAMING.—Place the vegetables in a perforated food insert and cook in the steamer. The only water that comes in contact with the vegetables is the small quantity formed by condensation.

SIMMERING.—Add the vegetables to boiling water and bring the cooking water back to the boiling temperature as soon as possible; reduce to simmering temperature until vegetables are done.

SHORT COOKING TIME IS BEST.—Cook only a small quantity of vegetables at a time. Vegetables must be cooked in the shortest time possible, and in a small amount of water. NEVER USE BAKING SODA to preserve color. Overcooking, cooking in too much water, or using soda in the water destroys the nutrients you are trying to conserve.

In fact, undercook rather than overcook vegetables. This is especially applicable when you know the cooked vegetable is to be placed on the steam table or is to have a second heating or cooking period, such as creaming, scalloping, or baking.

To determine if the vegetable is done, press pieces of the vegetable between the thumb and forefinger and taste the sample. If it is done, the vegetable should be tender but have a definite bite quality.

Ways to make vegetables more delicious are as follows:

- Cook them in soup stock (clean and free from fat).
- Cook ham or pork bones with the vegetables (do not use much of the pork fat).
- Serve them with a garnish that has a contrasting flavor, such as minced onion, diced crisp bacon, chopped parsley, a cheese sauce, chopped egg sauce, or fresh lemon.

Fruit

Fruit is procured by the Navy in the fresh, frozen, canned, dehydrated, and dried states. Fresh and processed fruits may be combined to vary the flavor and texture.

Every daily menu should include some fruit. It adds color, variety, food value, and a refreshing flavor to any meal. Fruit is among the least expensive and the most nutritious of all foods and has the distinction of being the most versatile. At breakfast fruit can be served alone or in combination with cereal. It can be prepared as appetizers, salads, main dishes, relishes, desserts, or snacks. It is excellent as a garnish and sometimes acts as seasoning. Fruit is an active partner in many meat dishes. Baked ham and pineapple are often teamed together, as are pork and applesauce, or turkey and cranberry sauce.

Preparing Fresh Fruits

Before fresh fruits are used, wash them thoroughly to remove any insect spray that may be present. If possible, pare fresh fruits immediately before they are used. When pared and left exposed to the air, some fresh fruits become discolored. Discoloration may be prevented by covering the fruit with lemon juice, or by

dipping the fruit in an antibrowning agent. Follow the directions on the guideline cards for antibrowning agents or those on the antibrowning agent container.

APPLES.—Apples may be served raw and whole for breakfast; sliced and cubed in salads or fruit cocktails; and baked, stewed, or cooked as applesauce for breakfast or dessert. Applesauce or baked apples may be used with pot roast and chops. If the skin of a raw apple is tender leave it on.

BANANAS.—Bananas may be served whole for breakfast, or sliced for breakfast, desserts, salads, or fruit cocktails. Peel and slice bananas as close to serving time as possible or use an antibrowning agent to prevent discoloration.

BERRIES.—Berries should be washed and drained. Handle them carefully to avoid crushing them. Serve them raw for breakfast or dessert; raw or cooked over shortcake; and cooked in cobblers or pies.

DATES.—Dates should be washed and seeded. Serve them on cereals or in cakes, cookies, or puddings.

GRAPES.—Grapes should be washed and picked over to remove the rotten ones. Then, cut them into small bunches and serve. If they are firm, slice, remove seeds, and serve them in salads or fruit cocktails.

GRAPEFRUIT.—Grapefruit may be served raw for breakfast or dessert and baked at a low temperature with sugar (either white or brown) for dessert. Cut them into halves crosswise and cut around the rind with a knife to loosen the pulp from each section. For salads, pare and remove each section of pulp by cutting carefully between the membranes, which are very bitter.

LEMONS.—Lemons may be cut into halves and the juice squeezed for use in fruit drinks, pies, or puddings. They may be used on fish or in tea by slicing or cutting them lengthwise into eighths.

MELONS.—Melons should be cut into halves or quarters and the seeds removed. They may then be served for breakfast or as desserts. They may be used for salads or fruit cocktails by removing the pulp with a ball-shaped spoon.

ORANGES.—Oranges may be served whole, cut into halves, or pared, sliced, and segmented for breakfast, desserts, salads, or fruit cocktails. Also they may be cut into halves and the juice squeezed for use in fruit drinks or desserts.

PEACHES.—Peaches may be served raw; whole, peeled, stoned, or sliced for breakfast or dessert. They may be used in shortcake. When you peel and slice peaches, do it as near as possible to the time you plan to use them or use an antibrowning agent to prevent discoloration.

PEARS.—Pears may be served raw; whole, pared, cored, sectioned, or sliced for breakfast or dessert. They may be stewed with sugar, cinnamon, cloves, or lemon. Pears discolor easily when peeled or sliced. So prepare them as near as possible to the actual time of use or use an antibrowning agent.

PINEAPPLE.—Pineapples may be served for breakfast, desserts, salads, or fruit cocktails. Pare pineapple with a long, sharp knife, beginning at the top and cutting down. Fresh raw pineapple should not be added to gelatin-type desserts because pineapple contains an enzyme that retards jelling.

PLUMS.—Plums may be served raw for breakfast or desserts.

PREPARING FROZEN FRUITS.—The Navy procures frozen fruits such as berries (strawberries, boysenberries), cherries, and peaches. Frozen fruits are closest to the fresh counterpart in flavor and appearance. They may be thawed by placing the unopened container in the chill space 24 hours before they are to be used. This allows the frozen fruit to thaw completely and more evenly throughout.

PREPARING DEHYDRATED FRUITS.—Dehydrated fruits, such as instant applesauce, apple slices, and diced apricots, are readily reconstituted by adding a proportionate volume of water to a specified weight of the particular dehydrated fruit. Like the dehydrated vegetables discussed earlier, dehydrated fruits because of their small weight and volume are convenient to store. Dehydrated fruits may be used for desserts such as puddings, pies, and cakes, or they may be reconstituted and served at any meal.

PREPARING DRIED FRUITS.—Wash dried fruits thoroughly before they are used. They may be soaked to reduce cooking time, but avoid a long soaking period because it produces a watery, tasteless fruit. Cook raisins and dates without soaking. If sugar is to be added, it should be at the end of the cooking period. If it is added at the beginning, it interferes with the absorption of water.

Salads

Salads have an important place on the menu. They contribute something both nutritious and refreshing to the lunch or dinner meal.

Fruit salads and vegetable salads are the most popular. They also introduce valuable vitamins, necessary minerals, and color into the meal.

Best of all, salads can be made quickly and easily if a few simple rules are followed. This is equally true for individual salads that often seem more appetizing and receive greater acceptance than a large dish of salad.

Salads consisting of fruits, vegetables, meat, or a combination of these ingredients provide a good menu for diet-conscious people or people who are trying to lose weight.

SALAD INGREDIENTS.—Nearly all salads contain some fresh, crisp greens, at least as a garnish; beyond that, however, the range of ingredients is very wide. A salad may consist of greens tossed with dressing, or it may consist of a combination of vegetables or fruits (or both). There are also hearty salads that may be used as the main dish of the meal.

SALAD GREENS.—Select your salad greens carefully. You have a wide choice of greens that are suitable for a salad foundation—lettuce, endive, escarole, young spinach, and cabbage. These may also be used as one of the main ingredients of the salad itself. Parsley and the inner tender leaves of curly endive are good for a garnish.

Sort, trim, wash, and crisp the greens before making the salad. Wash them carefully to free them of sand and earth particles. Drain them well. Hand cut the lettuce and cabbage into strips or pieces.

Place the prepared greens in pans, cover them with wax paper or a damp cloth, and refrigerate. They should be drained thoroughly and be free of excess water before they are placed in the serving line. They should be one of the very last parts of the meal to be prepared.

VEGETABLES FOR SALADS.—Fresh, canned, or dehydrated vegetables may be used for salads. Select the fresh vegetables with care. Wash them thoroughly. Trim and peel them, if necessary, and cut them into uniform sizes. Cook those that need cooking. When canned vegetables are to be used in a salad, the liquid drained from the cans should be reserved and used in soups, sauces, or gravies. The canned vegetables may be marinated in French dressing before being used in a salad. Dehydrated cabbage, green peppers, onions, and string beans may be reconstituted and used in salads.

The salad made from dehydrated vegetables is a welcome addition to the menu aboard ships on long endurance voyages. Whether you use fresh, canned, or dehydrated vegetables for your salad, the prepared food should be covered with waxed paper and placed in the refrigerator.

MAIN COURSE SALADS.—Salads used for the main course for lunch or dinner should be substantial and provide the food values comparable to any other main dish. These salads must include an adequate serving of high protein food, such as meat, fish, poultry, cheese, eggs, legumes (dried beans and peas), or peanuts, combined with crisp salad greens or other vegetables. Potato salad, cold or hot, may be an accompaniment to cold meats on a dinner or supper plate. Portions for main dish salads are comparatively large and mayonnaise or a mayonnaise-type dressing is usually served with the salad.

MIXING THE SALAD.—Mix the salad carefully JUST BEFORE IT IS TO BE SERVED. Combine the prepared, chilled ingredients in small amounts. Mix or toss them lightly together. Use a large fork to distribute the ingredients and dressing.

USE OF SALAD DRESSING.—The salad dressing is as important as the salad itself. Each type of dressing can take on a new flavor by the addition of different seasonings and herbs.

As a rule, the dressing should be added to a fruit or raw vegetable salad not more than a few minutes before you are ready to serve the salad. If you are preparing salads to be set out on the salad bar, place the various types of salad dressings in separate containers so that each patron may have a choice. Remember to use small size

should be discarded.

SERVING THE SALAD.—After a crisp, refreshing, and attractive salad is produced it should be served so that none of this attractiveness is lost. Select a cool place for assembling and serving the salad. Bring individual salads from the refrigerator, a few at a time, so that they will remain crisp.

RELISHES.—Relishes may be used in place of, or with, a salad. Raw carrots sliced lengthwise, celery, radishes, cauliflower flowerets, green pepper rings, olives, and pickles make excellent relishes and increase the attractiveness of a meal. Before they are served, all raw vegetables, except leafy varieties, should be refrigerated in icy cold water for an hour or more to make them crisp and tender.

Sandwiches

Sandwiches make satisfying meals and are especially convenient to serve in case of an emergency. This is true under battle feeding conditions when personnel are isolated from regular messing areas, or under similar circumstances. When sandwiches are prepared, remember that they will probably be the primary item of that particular meal and should be substantial. Whenever possible, sandwiches should be served with a beverage, fruit or fruit juice, and raw vegetables that can be eaten from the hand. There is no limit to the interesting and tasty food combinations that can be used for filling sandwiches. Many good recipes are listed in the AFRS.

SANDWICH BREADS.—Sandwiches may be made with any kind of bread. Varying the bread helps to avoid monotony. The kind of bread used should be appropriate for the type and flavor of the filling to be used. There is no set rule for such combinations as the choice is determined by individual taste. Sandwiches may be served hot or cold.

Breads that are used most often include white, rye, pumpernickel, and whole wheat as well as various types of rolls and buns.

STORING SANDWICH BREADS.—When you are making sandwiches, use slightly firm bread. Day-old bread is preferable because it is becoming stale. To prevent moisture loss or absorption, observe the tips listed below on wrapping and storing bread and rolls:

1. Store bread in a moistureproof wrapper.
2. Store bread at moderate temperatures (75° to 85°F) in a clean, dry space away from food.
3. Maintain a clean, dry storage place for the bread and rolls, separate from other stores, to prevent absorption of odors and flavors.
4. Bread should not be stored in chill spaces because it will stale rapidly. However, freshly baked and cooled bread and rolls may be wrapped in moistureproof material and frozen for later use.

SANDWICH FILLINGS.—The choice of fillings should be determined either by when the corresponding sandwiches will be eaten or by how the filling is used. For example, they may be served in sandwich meals (box lunches), as appetizers, or as a food item on a regular menu or fast-food serving line.

TYPES OF FILLINGS.—Some of the types of fillings are salad mixtures such as tuna, egg, and ham. Such mixtures as ground meat, chopped egg, fish or shellfish, or any filling containing mayonnaise or salad dressing should never be made for sandwich meals. These foods are likely to be contaminated with bacteria that will grow rapidly at room temperature and can cause illness.

Cold sliced turkey, chicken, roast beef, or cheese, and peanut butter and jelly are suitable fillings for sandwiches to be served either in or away (such as box meals) from the GM.

When used as fillings, these meats should be cooked according to AFRS recipes. After being cooked, the meat should be covered and refrigerated without slicing until just before the sandwiches are to be prepared. If the meat is sliced ahead of time, it will dry out even if it is covered and refrigerated. When you are ready to prepare sandwiches, slice the meat thinly and remove gristle and excess fat. Thinly sliced sandwich meats are more tender and juicy than thickly sliced meats. Slice only enough for immediate use.

SPREADS.—To avoid risk of contaminations and to allow the user an individual choice, such spreads as salad dressing, mayonnaise, mustard, or catsup should be packed separately. Always follow the AFRS directions for making sandwiches.

SANDWICH VARIATIONS.—The description and preparation methods for some of the sandwich variations are as follows:

1. Club sandwiches are made with three or more slices of toasted bread and two different fillings, one in each layer. Each sandwich is cut into quarters to form triangles. Toothpicks may be used, if necessary, to hold layers together.

2. In grilled or toasted sandwiches the filling is often cheese placed between two slices of bread. The top and bottom of the sandwich is spread with melted butter and the sandwich is grilled on both sides. Also, these sandwiches may be lightly brushed with melted butter, placed in sheet pans, and toasted in the oven.

3. French toasted sandwiches are dipped in a batter of egg and milk, then grilled. These sandwiches should be served hot.

4. Open-faced sandwiches may be either one or two slices of bread covered with any desired filling including slices of meat, cheese, or tomatoes. When two slices of bread are used, they are placed side by side rather than one on top of the other.

5. Submarine sandwiches (hero, hoagie, grinder, or poor boy) are prepared from French bread or a hard roll cut in half lengthwise. Each half is spread with salad dressing. Layers of thinly sliced salami, bologna, cheese, ham, tomatoes, and lettuce are then arranged on the bottom half. The sandwich is covered with the top half and cut vertically into portions. If these sandwiches are used for boxed meals or bag lunches, the salad dressing, tomatoes, and lettuce should be portioned and wrapped separately.

An Italian submarine sandwich contains provolone cheese, onions, a mixture of herbs, oil, and vinegar which can be sprinkled on either the bread or the lettuce.

6. Sloppy joes are sandwiches made with barbecued ground beef spread between halves of toasted sandwich buns.

7. Hot sandwiches are usually served open-faced with sliced meat and gravy. However, they are often served with soup, potato, and vegetables, and they are good main dishes for lunch or dinner.

8. Finger sandwiches are two slices of bread with a filling such as egg, tuna, or ham salad cut into three rectangular strips. Finger sandwiches are normally served as appetizers or for ceremonial occasions. Because these sandwiches contain salad mixtures, they should not be used in box lunches.

SANITARY PRECAUTIONS.—Sanitary procedures and precautions must be strictly followed in the preparation and serving of sandwiches. Some of these procedures and precautions are listed below:

1. Fillings for cold sandwiches are highly susceptible to bacterial contamination, and every precaution should be taken when preparing and serving sandwiches. NEVER ALLOW SANDWICHES TO STAND AT ROOM TEMPERATURE FOR MORE THAN 3 CUMULATIVE HOURS. This 3-hour period includes the time spent chopping or dicing food after it has been cooked. If the sandwiches will not be consumed within 3 hours following preparation, they must be held at temperatures below 40 °F or above 140 °F. When you are refrigerating fillings, they should be placed in shallow pans so that the contents will be quickly and completely chilled. Whenever possible, sandwiches should be made to order.

2. Never place or prepare sandwiches on a cutting board or surface that has been used to prepare raw chicken or turkey.

3. Keep sandwich counter and equipment thoroughly clean and sanitized.

4. Clean chill boxes and accessories frequently to avoid mold and undesirable odors.

5. Use sanitized utensils instead of hands whenever possible.

6. Requisition and prepare food in the quantities needed so that there will be a rapid turnover and as few leftovers as possible.

7. Keep the time between preparation and consumption to a minimum.

8. Pack or serve lettuce, tomatoes, and spreads used in bag or box lunches separately.

9. Keep the filled sandwiches at a temperature of 40 °F or lower if possible.

10. Avoid leftovers. Do not use any foods for sandwich fillings, including leftover meat and eggs, that have been held at 40 °F or over for more than 30 minutes. The bacteria grow more rapidly in some foods than in others. The use of pickle relish or slightly soured mayonnaise in sandwiches is of no practical value in the control of pathogens or toxins.

11. Immediately following the preparation, wrap each sandwich separately, if possible, and

refrigerate. Never use a dampened cloth or towel to keep bread or sandwiches moist.

12. Avoid stacking a large number of sandwiches or placing sandwiches in cardboard boxes. This method of storing actually insulates the food and prevents it from cooling as fast as it should to the desired storage temperature.

13. To make sure that sandwich meal customers know the safe time limit within which the meals are to be eaten, mark the boxes as shown below:

Date and time issued: _____
Keep under refrigeration or eat by _____
(within 3 hours after time of issue)

Prepared by: _____
(initials/time/date)

Pastas

Pastas (macaroni, spaghetti, vermicelli, and noodles) are produced from semolina durum wheat flour, farina, or hard wheat flour (other than durum wheat flour) and water. Egg noodles also contain eggs. The mixtures are rolled, shaped, and dried in various forms. The only difference between vermicelli and spaghetti is that the individual strands of vermicelli are finer and require less cooking. They may be used interchangeably in recipes specifying spaghetti or vermicelli.

Pastas should be added to vigorously boiling, salted water and stirred so that they will not stick together or to the bottom of the kettle. A small amount of salad oil is added to the water to help to prevent sticking. Pastas should be drained as soon as they have finished cooking. If pastas are overcooked, they become soft and gummy.

Rice and Barley

The rice products used in the military feeding programs are parboiled, long-grain and medium-grain rice. They need not be washed before cooking. Cooked long-grain rice should appear light textured and the individual grains should stand apart. Medium-grain rice, when cooked, will clump together. This type of rice is preferred in Oriental dishes. Directions for proper cooking by steaming, simmering, and baking are contained in the AFRS. Rice may be served plain, as a potato substitute, combined with other ingredients in a main dish, added to salads, or topped with highly seasoned sauce. For variety, combine rice with herbs, spices, chopped onions, or nuts. Rice pudding can be served for dessert.

Barley is a grain used principally as a soup ingredient.

Cereals

Cereals are foods made from grains of wheat, oats, corn, rice, rye, and barley. Cereals are often referred to as breakfast foods, but are not limited to the breakfast meal. Cereals can be used in many types of recipes.

Cereals are usually classed as carbohydrates and thus are known as energy foods. Some cereals have a great amount of protein and are body-building foods.

CEREAL TYPES.—The types include instant or quick cooking. There are also ready-to-eat cold cereals.

CEREAL PREPARATION.—Instant cereals do not require further cooking. They are simply mixed with boiling water before serving. Quick-cooking cereals require a shorter cooking time than regular cereals. To prevent quick-cooking cereals from forming lumps, they should be stirred slowly into rapidly boiling water. Quick-cooking farina is mixed with cold water and then added to boiling water. These cereals should be stirred constantly until they boil. After they begin to boil, reduce to a simmer and stir them occasionally. Overstirring and overcooking will cause cereal to be sticky and gummy.

Ready-to-eat cold cereals require no cooking and are served with cold milk and sugar. No added sugar is needed for the coated or frosted cereals. For variety, sliced peaches, strawberries, prunes, or bananas may be added.

Eggs

Eggs are a valuable food. They contain minerals, vitamins, and protein which build new body tissues, repair old tissues, and regenerate the blood. Eggs are easily digested and, if properly cared for and properly prepared, are delicate in flavor.

EGG USES.—There are many ways that eggs can be used in food preparation. Some of the ways are as follows:

- To thicken custards, puddings, and sauces
- To leaven cakes and cookies

- To add color, richness, and flavor to any dish in which they are used
- To help provide a coating on breaded meats and fish
- To be served as a colorful, good-tasting garnish for salads, soups, or cold meat platters
- To bind ingredients together as in meat or fish loaves, and patties
- To emulsify (help keep the right consistency of) salad dressings

FORMS OF EGGS.—The Navy procures eggs in the following forms:

1. Fresh eggs are procured in two types, those that are no more than 30 days old and those that have been treated with oil or other processing fluids so they have a storage life of up to 4 months when refrigerated. Both types should be stored at 32 °F in a dry, well-ventilated place away from strong odors such as onions.

When several fresh eggs are to be used, break each one separately into a small dish. Thus any egg that may have a strong odor or poor appearance can be discarded without spoiling the others.

2. Three kinds of frozen eggs are available: whole table, whole bakery, and frozen egg whites. To thaw frozen eggs, place them in a chill or thaw box at 36 ° to 38 °F, or place them in a sink and cover the container with cold water. Thirty-pound cans will take 2 days or more to thaw. A day or more is required to thaw 10-pound cans or cartons at 36 ° to 38 °F. DO NOT THAW frozen eggs at room temperature. The outer edges will reach a temperature where bacteria can grow, while the center of the container will remain frozen.

Once the eggs are thawed, they are very perishable. Any leftover thawed eggs should be placed in a tightly covered container in a refrigerator and used within 24 hours. DO NOT refreeze thawed eggs.

Frozen whole table-type eggs should be used for scrambled eggs and omelets. The bakery-type frozen eggs and frozen egg white should be used ONLY in baking. Egg whites that are used in pie meringues MUST BE BAKED AS A PRECAU-

3. Dehydrated egg mix is prepared from fresh whole eggs, nonfat milk, vegetable oil, coloring material, and salt. The mix may be used to make scrambled eggs and omelets, French toast, griddle cakes, and can be used in place of fresh eggs in baked foods. Reconstituted egg mix, if not used immediately, must be placed in a tightly covered container in refrigerator and used within 1 hour. Dehydrated egg mix CANNOT be used in uncooked dishes.

EGG PREPARATION.—The AFRS has recipes with detailed procedures for cooking omelets and for fried, scrambled, poached, soft- and hard-cooked eggs. Key steps for each of these are summarized below:

1. Fried eggs are made using only fresh shell eggs. Cook them gently until the white is firm. Fried eggs must be cooked at low temperatures. High temperatures will cause them to be tough. Eggs may be fried in greased pans in the oven. Oven-fried eggs require a slightly longer cooking time than those cooked on a griddle.

2. Scrambled eggs may be made from fresh eggs, frozen whole table eggs, or dehydrated egg mix. Chopped ham or shredded cheese can be added for variety. If scrambled eggs are prepared in bulk for service from steam table inserts, remove them from the heat when they are only slightly thickened. They will continue to cook and thicken while they are being held. Cook them in small batches to prevent overcooking and drying out on the steam table.

3. Poached eggs are prepared by breaking a fresh shell egg into a small bowl and slipping it from the bowl into boiling water. Then, reduce the heat and allow the egg to simmer until the white is formed. Finally, remove the poached egg from the water with a perforated spoon.

4. To prepare soft-cooked eggs, you should remove fresh shell eggs from the refrigerator about 30 minutes before cooking. Leave the eggs in the shell. Place them in a wire basket and lower the basket into hot water. Bring to boil; reduce heat; simmer the eggs for 4 minutes.

5. Hard-cooked eggs may be served whole and unpeeled for box or bag lunches, sliced or quartered in salads, as a garnish, or as an ingredient in dishes such as potato salad. Simmer 10 to 15 minutes.

Place hard-cooked eggs in cold water immediately after cooking. This will prevent the yolk

are to be stored in the refrigerator after cooking. They may darken if peeled ahead of time. Leftover, hard-cooked egg yolks may be used to garnish green salads, potato salad, macaroni salad, or cooked vegetables. To prevent the yolk from crumbling when slicing hard-cooked eggs, dip the knife into cold water before slicing.

6. Omelets are prepared from fresh whole eggs, frozen whole table eggs, or dehydrated egg mix. The eggs are beaten just enough to blend the yolks and whites. Crumbled bacon, shredded or ground cheese, chopped ham, mushrooms, or vegetables may be added for variety. Individual portions of the eggs are poured on to a greased griddle. The omelet is not stirred during cooking, but is lifted to allow the uncooked portion to flow on to the hot griddle. When the omelet is set, it is folded in half or into thirds.

Cheeses

Cheese is a product obtained from milk that has been treated with an enzyme or acid to cause the milk to separate into solids (curds) and liquid (whey). The many varieties of cheese are the results, primarily, of different methods of processing and aging curd.

Processed cheese is made by adding water and emulsifiers to a blend of natural cheese that is then heated and formed into a homogeneous mass.

The kinds of cheeses used in the general mess are as follows:

1. Blue-veined natural cheese is a semisoft cheese that derives its name from the veins of blue mold running throughout. It has a tangy, sharp flavor. Blue cheese has a pasty, sometimes crumbly texture. It is similar to Roquefort cheese. It may be served with crackers and as an ingredient in blue cheese salad dressing.

2. Natural cheddar cheese is a hard cheese used most commonly to make cheese sauce for rice, macaroni, noodles, vegetables, and egg dishes. It is also sliced to serve in sandwiches and with crackers and can be diced and cut into strips to add to salads. The flavor of cheddar cheese may range from mild to very sharp.

Cheddar cheese is procured in different weights and shapes called "daisies or triplets" and "flats or twins." Rindless cheddar cheese is also procured. Weight ranges vary from 10- to 20-pound loaves to 40-pound blocks. Shredded cheddar cheese is available for use in baked dishes, tacos, and salads. One- to two-ounce individual packages of processed cheddar cheese are available for use in box lunches or flight meals.

3. Cottage cheese is a soft, uncured cheese that is also called "pot cheese" and "farmer cheese." It is available for the military services in creamed style and in small and large curd. It may be served alone, with fruit in a salad, and as an ingredient in baked lasagna. It is perishable and should be kept refrigerated until served. Stocks on hand should be checked daily to make sure that the cheese is fresh when served. Dehydrated cottage cheese may be used in recipes specifying fresh cottage cheese. Once rehydrated, it is as perishable as fresh cottage cheese.

4. Cream cheese is a soft, highly perishable cheese. It has a delicate, slightly acid flavor. It should be stored in the refrigerator and will keep up to 4 months. If it is kept frozen in the original container, it will keep up to 6 months. It should be thawed in a chill space and used as soon as possible after thawing. Cream cheese can be combined with fruit in salads or mixed with other ingredients to make stuffed celery, sandwich fillings, and appetizers. Soften cream cheese at room temperature before blending it with other ingredients.

5. Parmesan and Romano cheeses are similar kinds of very hard, sharp-flavored cheese that are grated and sprinkled over dishes such as spaghetti with meat sauce and baked lasagna. They may also be used as toppings for casserole dishes and as ingredients in salad dressings. They may be sprinkled on buttered French bread, which is then heated or toasted. Parmesan and Romano cheeses should be kept refrigerated once opened.

6. Provolone and mozzarella cheeses are similar kinds of semisoft cheese that are used most often to make Italian dishes such as pizza and lasagna. Provolone cheese is smoked and has a sharp flavor, where as mozzarella is not. Mozzarella cheese will slice or shred more easily if chilled.

7. Pizza-blend cheese is a blend of shredded and grated mozzarella, provolone, Parmesan, and Romano cheeses used to make pizza. It may also be substituted in recipes calling for mozzarella cheese and Parmesan cheese. Unlike mozzarella cheese, pizza-blend cheese should be kept frozen until ready for use in food preparation. This cheese must be thawed under refrigeration. Thawing at room temperature will encourage bacterial growth (inherent in product), resulting in an undesirable flavor and swelling of shipping container.

8. Pasteurized, processed American cheese is available in loaves and in individual slices. It melts and blends easily and may be used in any recipe specifying cheese. It has a milder cheddar flavor than natural cheese. Processed, sliced pimento cheese is also available and is usually served in sandwiches.

9. Pasteurized, processed American cheese (dehydrated) is made by following AFRS guidelines for rehydrating this nonperishable cheese. It may be used in any recipe specifying regular, processed American or cheddar cheese. Once rehydrated, it is as perishable as other fresh American processed or cheddar cheese.

10. Pasteurized, processed American cheese food is made the same way as processed American cheese, but has a high moisture content. It has a slightly milder cheddar flavor than processed American cheese. It melts more readily than processed and natural cheese and blends smoothly and quickly. Cheese food is recommended primarily for making grilled cheese sandwiches and cheeseburgers.

11. Natural Swiss cheese has a nutlike, sweet flavor. The characteristic holes (eyes) in Swiss cheese develop naturally as the cheese ripens or ages. It is available in slices or rindless blocks. Swiss cheese may be used in sandwiches, salads, baked dishes, and in other recipes such as quiche that specify cheese. Swiss cheese, like other hard and semihard cheese, should be carefully wrapped and stored in the refrigerator to prevent drying out.

12. Processed Swiss and American cheese is a blend of the two cheeses that may be used in any recipe specifying cheese.

Beverages

Beverages are an important part of Navy meals. The preparation of high-quality beverages requires the skill, technique, and experience of a skilled MS. The types of hot and cold beverages used in the GM include milk, coffee, tea, cocoa, fruit and vegetables juices, fruit-flavored drinks, and soft drinks.

The quality of most beverages depends on the following factors:

1. Using clean and sanitary mixing and dispensing equipment
2. Following correct preparation methods and accurate measurements are specified in either the AFRS or on the food containers
3. Maintaining correct temperatures during preparations and holding
4. Preparing beverages in batches to make sure of freshness

COFFEE.—The preparation of coffee demands as much detailed attention as does any other part of the meal. Tastes for coffee vary widely. Some people prefer a weak brew while others enjoy a strong one. The AFRS contains directions for brewing various strengths. Good coffee will smell fragrant and mellow. The color will be a deep brown but not black. The taste will not be rancid, oily, or bitter. The strength of the coffee depends on the proportion of water used in relation to coffee grounds. A milder brew results from using either more water or less coffee than normally. Bitterness results from brewing the coffee too long.

The forms of coffee available are as follows:

- Roasted and ground coffee is used to brew coffee in manual and automatic urns, automatic coffeemakers, and steam-jacketed kettles. Decaffeinated forms are also available.

- Freeze-dried instant coffee is usually used with a freeze-dried coffee dispenser but may also be prepared in a coffee urn. This type of coffee packed in flexible packages offers reduced storage space, cost, and weight as compared to roasted and ground coffee. Decaffeinated freeze-dried coffee is available in single-service packets.

- Regular instant coffee is available in single-service packets. Just add a cup of boiling water to the coffee and stir.

Listed below are several suggestions that will help you produce brewed coffee of consistent quality:

- Store roasted coffee in an airtight metal container because coffee loses its flavor and aroma rapidly when exposed to air. Also, it will also absorb odors that lower its taste quality.

- Use older stocks first. Within 3 days after opening, vacuum coffee has lost much of its flavor.

- Always measure both the coffee and the water.

- Use fresh coffee at all times, and keep the coffee covered while it is brewing.

- Never allow coffee to remain in contact with boiling water as the flavor and aroma will boil off.

- Remove the grounds as soon as the coffee is made. Seepage from the grounds will ruin the flavor of the best coffee.

- Brewed coffee should not be held for more than 1 hour as it deteriorates in flavor and loses its aroma.

- Most important of all, keep the coffee-making equipment absolutely clean. Wash the urn with clear, hot water immediately after you have used it, and at the end of the day clean it with hot water and urn cleaner. Rinse thoroughly with clear water. Never use soap or soap powder.

TEA.—Normally, two forms of tea are used; bulk tea and tea bags. Instant, powdered tea, however, also has special uses in the military services.

The quantity of brewed tea depends upon how fast the boiling water extracts flavor and color from the tea leaves; it is the tannin present in the leaves that gives the tea a bitter taste. Improper temperatures, brewing too long, and holding tea too long for service will bring out the bitterness of the extracted tannin.

The proper quantities of both water and tea should be measured carefully. Never guess at the amounts.

Hot Tea.—You won't have any trouble making excellent tea if you follow a few simple rules.

- When loose tea (not enclosed in a cloth bag) is placed in the urn or kettle, the tea should be strained after it has steeped for 5 minutes.

- Tea should be made just before serving.

- Do not boil; this brings out the bitter taste.

- Schedule preparation so that not more than 15 minutes will elapse between its preparation and service; hold prepared tea at 175° to 185°F.

Iced Tea.—The following points should be observed when preparing tea to be served iced:

- A stronger brew is required for iced tea than for hot tea because of the diluting ac-

- A tea concentrate may be brewed and chilled, then diluted before serving.

- Do not add cold water to the concentrate; this may produce cloudy tea. The concentrate should be poured into the cold water.

- The tea may be presweetened by dissolving sugar in the hot concentrate before diluting it with cold water.

- If desired, cut lemons into eights to serve with tea.

MILK.—Milk is one of the Navy's best-liked foods. It is important to keep in mind that milk, served as a beverage or used in cooking, is a potentially hazardous food. To make sure of safe high-quality milk, you should know the recommended use of each type. The types of milk and their uses are as follows:

1. FRESH WHOLE MILK is a pasteurized, homogenized product with a milk fat content of about 3.25 percent. It will deteriorate or spoil rapidly if not properly handled. Keep chilled at all times to ensure maximum keeping quality and flavor.

2. FRESH SKIM MILK should be available for those who desire to watch their weight or modify their fat intake. Skim milk contains less than 0.5 percent milk fat. Keep chilled at all times. Individual containers are recommended to prevent waste.

3. FRESH LOW-FAT MILK contains 2 percent milk fat. It is also an acceptable milk product for weight watchers. Keep chilled at all times. The use of small containers is recommended.

4. FRESH BUTTERMILK is a cultured milk with a milk fat content of 0.5 to 2 percent. Keep chilled at all times. Individual containers are recommended to prevent waste.

5. FRESH FILLED MILK is available overseas. It is commercially produced by combining nonfat dry milk, vegetable fat, sugar, salt, and water. Keep chilled and serve like fresh milk.

6. FRESH, CHOCOLATE-FLAVORED MILK contains a minimum of 3.25 percent milk fat. It is usually offered in addition to white milk. Keep chilled at all times.

7. FRESH, CHOCOLATE-FLAVORED LOW-FAT MILK has a lower milk fat content (0.5 to 2 percent) than chocolate-flavored milk. Keep chilled at all times. Use like fresh, chocolate

8. FRESH EGGNOG is usually available during the holiday season and is available for CONUS use.

9. UPAPP WHITE MILK (ULTRAHIGH PROCESSED, ASEPTICALLY PROCESSED, AND PACKAGED) was formerly termed *sterilized* milk. It provides a supply of milk for ships deployed on long cruises when there is a limited supply of fresh, whole milk and refrigeration space. Chilling will extend storage life, but it should not be frozen. Served chilled in the original container.

10. UPAPP CHOCOLATE-FLAVORED DAIRY DRINK is processed similarly to UPAPP white milk. Chocolate flavoring has been added. Handle like UPAPP white milk.

11. UPAPP EGGNOG is more stable eggnog than the fresh item. Keep chilled and use like fresh eggnog. It is available for afloat and overseas use.

12. INSTANT, NONFAT DRY MILK is produced by spray-drying fresh skim milk into large soluble particles. It is more easily mixed with water than the conventional, nonfat dry milk. However, it requires more storage space and costs more than conventional, nonfat dry milk. It is recommended for beverage use only.

13. CONVENTIONAL, NONFAT DRY MILK is designed for developing volume, flavor, and the crust color and texture desired in yeast breads. Use it only in bread baking.

14. CONVENTIONAL, NONFAT DRY MILK is used as a beverage and for cooking and baking (other than bread). NOTE: All types of dry milk should be weighed, not measured, because volumes will vary from one manufacturer to another. Check the AFRS guidelines for reconstitution of all types of nonfat dry milk. Keep chilled once reconstituted.

15. UHTAPP MILK (ULTRAHIGH TEMPERATURE, ASEPTICALLY PROCESSED, AND PACKAGED MILK). UHT milk is milk that has been heated to ultrahigh temperatures for a specific length of time. The ultrahigh temperature destroys the microbes and the milk is sterile. The process and the aseptic packaging enables the milk to be stored without refrigeration. The shelf life of UHT milk is 120 days at 45 °F or below, 90 days at 65 ° to 70 °F, and 45 days at 85 ° to 125 °F. The milk should be chilled before serving. UHT is available in whole, white and chocolate flavored, and low-fat white and low-fat chocolate flavored.

16. MILK SUBSTITUTE is an instant, low-fat product to be used only as a beverage. It is gallons of milk. It is best when prepared and refrigerated 12 hours before use. Advantages of using this product rather than UHT milk is cube-space savings and a 2-year shelf life. Follow manufacturer's directions for reconstitution and handling.

17. BUTTERMILK, DRY is an instant product to be used in recipes only. Follow manufacturer's directions for reconstitution and handling.

COCOA.—Cocoa beverages can be prepared with natural, dry cocoa, sugar, nonfat dry milk, and other ingredients, or by using a presweetened cocoa beverage powder, which is mixed with boiling water.

The AFRS gives directions for both types. However, since the natural dry cocoa must be cooked, it is more often used in baking. Both individual and bulk packages of presweetened cocoa beverage powder are available. The individual size is intended for self-service; the bulk package is designed for use with a dry cocoa dispenser.

FRUIT AND VEGETABLE JUICES.—Single-strength fruit and vegetable juices are available in a wide variety of flavors and are simple to prepare since they require only chilling, opening, and pouring. To make sure of a quality beverage you should do the following:

- Shake a juice can to blend the liquid with the solids which tend to settle.

- Serve juices as soon as possible after opening cans.

- Transfer unused portions of open cans to a clean storage container with a tight-fitting cover. If stored uncovered, the juice will absorb refrigerator odors and flavors. If the juice is stored in the can a tinny taste may develop.

The types of fruit juices that are found in the GM are as follows:

- Frozen, concentrated fruit juices require minimum storage space and make an excellent tasting fruit juice. They must be kept at 0 °F or lower to retain maximum quality.

- Canned tomato juice concentrate may be used to make tomato juice or tomato paste. Follow the guideline card for juices in the AFRS for reconstitution.

- Instant fruit juices are easy to use and

powders that readily dissolve in water. The reconstituted juices compare to fresh and frozen fruit juices in flavor and appearance. The instant fruit juices available are unsweetened orange, sweetened grape, and sweetened grapefruit. They are packed in cans with a desiccant bag that takes up moisture. When preparing the juice, discard the desiccant bag; its contents are not edible. Do not reconstitute partial quantities of a can. Instant juices absorb moisture rapidly and will cake and harden after opening.

- Fruit juice drinks may be prepared from canned, frozen, or instant fruit juices. They include cocktails, punches, and ades, such as lemonade. Follow the directions in the AFRS.

FRUIT-FLAVORED DRINKS.—Unsweetened, powdered beverage bases are used to make fruit-flavored drinks. Sugar and water are added according to the directions on the containers.

SOFT DRINKS.—Sugar-sweetened and low-calorie liquid beverage bases are available in various flavors for soft drinks. The liquid beverage bases are concentrated syrups, designed to be mixed with water or carbonated water in soft drink dispensers. Follow the manufacturer's directions for dispensing. Individual containers of carbonated and noncarbonated soft drinks are also authorized for use where beverage dispensing equipment is not available; for example, picnics and bag or box lunches.

CHAPTER 8

MEAT, POULTRY, AND SEAFOOD

Meat, poultry, and seafood offer excellent nutritional benefits. Importantly, a large share of basic daily food allowance (BDFA), or the monetary value required to provide a nutritionally adequate diet for one person for one day, is spent on meat, poultry, and seafood.

This chapter will explain the following topics:

- Forms of meat procured by the military
- Styles of poultry used by the military
- Two kinds of fish used by the military
- Grades of beef, pork, veal, lamb, poultry, and seafood used in the military
- Meat cooking methods
- Poultry cooking methods
- Seafood cooking methods

MEAT

Meat is the flesh of any animal used for food. The word *meat* as used in the Navy foodservice means beef, veal, pork, lamb, or rabbit. Meat appears on the Navy menu in some form each day. It is the focal point of every meal, dictating what other dishes will be served. Correctly cooked and served meat is the sign of a well-informed and skillful MS.

BEEF

Beef comes from cattle and is the most frequently used of all meats. There are five categories of beef.

- Steer: male that is castrated when young
- Cow: female that has calved
- Bull: fully developed male
- Heifer: young female that has not born a calf
- Stag: male castrated after maturity

Steers and heifers are most suitable for use in Navy messes; whereas cows, bulls, and stags are older and stringier and may be found in canned products.

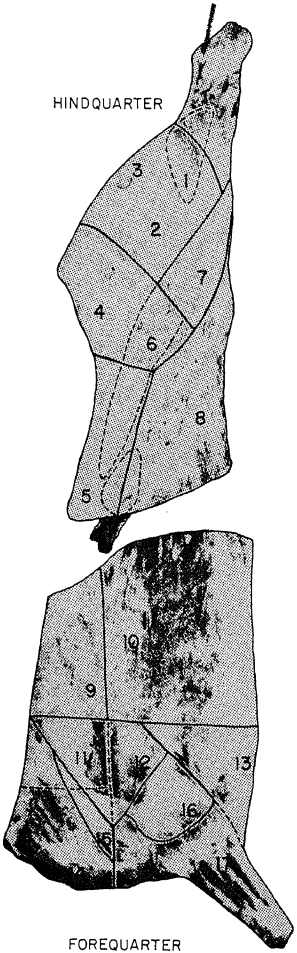
A beef chart (fig. 8-1) shows the location and uses of various cuts of beef procured by the military for use in the general mess.

Beef Inspection

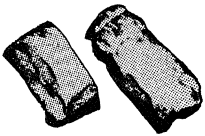
All beef and beef products prepared in establishments operating under Federal Meat Inspection Regulations are branded or labeled as follows: "U.S. inspected and passed by Department of Agriculture"; "U.S. inspected and passed"; "U.S. INSP'D & P'SD"; together with the number that identifies the establishment. These stamps (fig. 8-2) indicate that the beef and beef products bearing these stamps comply with the inspection regulations of the United States Department of Agriculture (USDA), and that they are wholesome and have been processed under sanitary conditions.

Beef delivered under contract to the military within the continental United States is not accepted unless each item (or the shipping case) bears the inspection stamp or USDA label. Each item must also bear a Department of Defense stamp that indicates that the meat meets all terms of the contract (fig. 8-3).

After it is determined that the animals are free of disease and meet sanitary requirements, the USDA stamps are placed on the carcass meat.

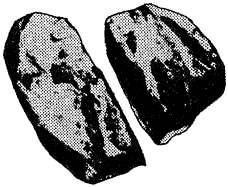


1-HEEL
POT ROASTS
DICED
GROUND

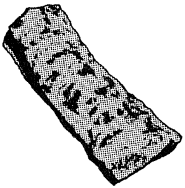


2-OUTSIDE (BOTTOM) ROUND
POT ROAST
SWISS STEAK

3-INSIDE (TOP) ROUND
ROASTS
STEAKS



4-SIRLOIN-RUMP BUTT
ROASTS
STEAKS

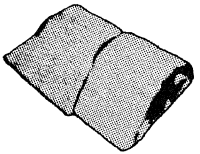


5-LOIN STRIP
ROASTS
STEAKS

6-TENDERLOIN
ROASTS
STEAKS

7-KNUCKLE (TIP)
ROASTS
STEAKS

Figure 8-1.—Cuts in a side of beef.



9-BONELESS RIB

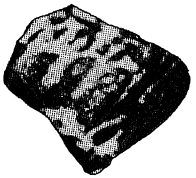
ROASTS
STEAKS

10-BONELESS PLATE

BRAISE
STEW
GROUND

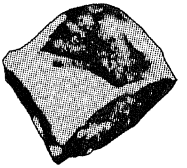
13-BONELESS BRISKET

BRAISE
STEW
GROUND



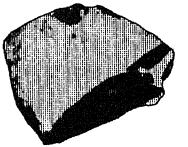
11-INSIDE CHUCK

POT ROASTS
SWISS STEAKS



12-UPPER HALF-CLOD

POT ROASTS

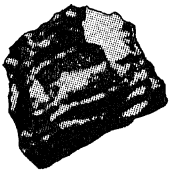


16-LOWER HALF-CLOD

POT ROASTS

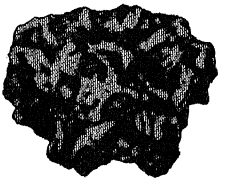
15-CHUCK TENDER

POT ROASTS



14-BONELESS NECK

BRAISE
STEW
GROUND



8,10,13,14,17-
BONELESS STEW

A. BEEFBURGERS

B. SALISBURY STEAKS

C. MEATBALLS

A. B. C.

Figure 8-1.—Cuts in a side of beef—Continued.

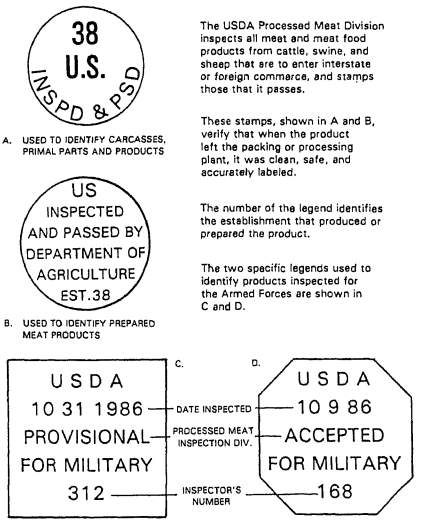
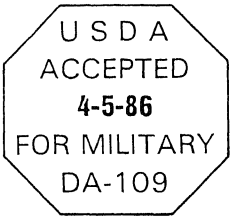
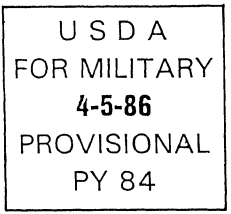

38
U.S.
INSPD & PSD
A. USED TO IDENTIFY CARCASSES, PRIMAL PARTS AND PRODUCTS
US
INSPECTED
AND PASSED BY
DEPARTMENT OF
AGRICULTURE
EST.38
B. USED TO IDENTIFY PREPARED MEAT PRODUCTS
The USDA Processed Meat Division inspects all meat and meat food products from cattle, swine, and sheep that are to enter interstate or foreign commerce, and stamps those that it passes.
These stamps, shown in A and B, verify that when the product left the packing or processing plant, it was clean, safe, and accurately labeled.
The number of the legend identifies the establishment that produced or prepared the product.
The two specific legends used to identify products inspected for the Armed Forces are shown in C and D.
C.
USDA
10 31 1986
PROVISIONAL
FOR MILITARY
312
DATE INSPECTED
PROCESSED MEAT INSPECTION DIV.
INSPECTOR'S NUMBER
D.
USDA
10 9 86
ACCEPTED
FOR MILITARY
168

Figure 8-2.—Department of Agriculture inspection stamps.



USDA Dairy Division Stamp used when the product has been inspected and accepted. It is used at either point of origin or destination.



USDA Poultry Division Stamp, used by resident Poultry, Shell Egg, and Egg Products graders. The letters DA and PY identify the Division as Dairy or Poultry. The number that follows identifies the grader performing the inspection.

Figure 8-3.—Inspection stamps of Department of Agriculture and Department of Defense.

Grades of Beef

Beef is graded as prime, choice, good, standard, commercial, utility, and cutter. The military services generally purchase only choice and good grades. However, utility grade or better ground beef and beef tenderloins are procured ungraded.

Beef roasts and steaks procured for the Navy are choice grade. Choice grade meats are tender, juicy, and flavorful. Some beef items such as diced beef may be from choice or good grade meat. Good grade beef is not quite as tender, juicy, or flavorful as choice grade, but if the proper preparation methods are used, an acceptable product is produced. Good grade beef has less fat marbling than choice or prime grade beef.

Forms of Meat

The forms of meat procured by the military are frozen, fabricated, and canned.

FABRICATED MEAT.—Fabricated meats have been either partially or completely boned, trimmed, and portion cut into slices, steaks, chops, or roasts. Most types of meat procured by Navy messes are fabricated to some extent.

A completely fabricated meat has all bones removed and is cut into portion-sized steaks or roasts. For example, boneless beef is cut from selected wholesale beef cuts or carcass meat according to specifications of the armed forces. The meat is wrapped, packed in shipping containers, and then frozen. Bones, excess fat, gristle, and tendons are removed by the processor.

Frozen boneless beef products that are procured include the following:

1. Grill steak..... Average weight: 7 ounces. Ribeye, loin strip, sirloin butt.
2. Sandwich steak ..... Wafer-thin slices of lean beef, 2 ounces.
3. Swiss steak, ... Average weight: 6 ounces. braising
4. Oven roast ..... Approximately 10 pounds. Knuckle, top round.

5.	Oven roast, precooked	Top round. Product is ready to be sliced and served. May be heated on grill or served with hot au jus.
6.	Pot roast	Maximum weight: 10 pounds. Shoulder clod or chuck roll.
7.	Beef pattie mix, bulk with 20 percent soy	Packaged in rectangular or chub pack units. Approximately 7-pound package.
8.	Beef patties with 20 percent soy	Weight: approximately 3 ounces.
9.	Beef for stewing diced	Prepared from selected bone-in or boneless whole beef cuts.
10.	Ribeye roll	Weight: 8 to 10 pounds.
11.	Rounds	Prepared from bone-in rounds. Weight 35 to 57 pounds.
12.	Tenderloin	Minimum weight: 4 pounds. Ready to roast or slice into steaks.

Each box of boneless beef is clearly marked to show the type of meat inside.

BONE-IN BEEF.—Bone-in beef (beef rounds and ribs) should be used only as storage space permits. They require more storage space than boneless beef. The beef rounds have the rump and shank removed. The weight range for rounds is 40 to 64 pounds. The oven-ready weight range of beef ribs is 14 to 22 pounds.

VEAL/CALF

Veal/calf is immature beef or calves less than 1 year old. Good veal/calf has a light grayish pink color and has a firm, smooth appearance. The types of veal/calf procured are boneless roasts (5 1/2 to 7 pounds), ground veal, and breaded veal steaks. Breaded veal steaks, 5 to 6 ounces, are produced from veal using a flake-cut method. The product is ready to cook. Deep-fat fry, add cheese and tomato sauce, and heat until hot in ovens. Veal steaks must be cooked frozen to ensure a moist, tender product.

LAMB

Official USDA grades for lamb are prime, choice, good, utility, and cull. These grades are based on conformation and quality. The military services procures only prime and choice. High-quality lamb has a smooth covering of clear, white, brittle, fat over most of the exterior. The lean portion is pinkish red in color, fine in texture, and velvety in appearance. General messes use only boneless leg roast.

PORK

Pork comes from hogs. Pork is USDA inspected and graded, but grade marks are not indicated on the meat for consumer use. The difference in the tenderness, juiciness, and flavor of the different grades of pork is not as great as it is in the different grades of beef. The flesh of hogs is the lightest in color of all meats. Young pork is white to grayish pink; pork from older animals is darker pink. The flesh should be firm and fine grained and should have a good intermingling of fat and lean.

The Navy procures both fresh and cured pork. The fresh cuts, which may be delivered frozen, are pork butts (Boston), boneless pork hams, bladeless pork loins, boneless pork loins, pork hocks, pork sausage, diced pork, pork spareribs, country-style ribs, and pork tenderloins. Cured products include Canadian-style bacon, raw and precooked bacon, boneless cooked smoked ham, smoked pork hocks, and canned ham (pear-shaped, pullman-shaped, and chunks).

As with beef, pork must be handled, cut, prepared, and packaged according to contract specifications. The curing processes are applied to the basic pork products such as ham, shoulder (picnics), and bacon.

Fresh Pork

The bladeless loin is that portion of the loin that remains after the blade bone and related cartilages and the overlying flesh have been removed. The boned pork loin is the regular cut loin that has been trimmed and boned, cut in half, and the two halves placed together and tied to form a symmetrical roast. If desired, pork chops may be cut from the boneless pork loin.

Boneless slices consist of 5 ounces of boneless loin. Pork tenderloin is a muscle that has been removed from the loin section of pork sides. Spareribs are the bony but flavorful rib section. Country-style ribs are prepared from the backbone. Frozen pork sausage is available in links, bulk, and pattie styles. All pork sausage products are very perishable and have a short shelf life of 2 to 3 months. Fresh pork hocks and pigs' feet are available for use. Pigs' feet may be served with cooked greens or as an entree. Fresh pork hocks are uncured and generally served with sauerkraut.

Smoked Products

Bacon is served more frequently than any other pork product. Frozen raw or canned and frozen precooked items are available. Precooked frozen and canned bacon require only heating to a serving temperature. They save space and reduce waste. Although initially more expensive, each pound of precooked bacon is equivalent to 2 1/2 pounds of raw bacon.

Smoked pork hocks may be cooked and served as a main course or used to season cooked greens.

Hams procured by the Navy may be fresh, frozen, canned, smoked boneless, or whole hams. All hams are skinned. Fresh pork hams are frozen and also boneless. They range in weight from 8 to 14 pounds. Canned hams are pasteurized and may be used without further heating, but heating and glazing improve the flavor. They must be stored and kept under refrigeration at all times.

Canned hams have a high yield, are easy to prepare, and are economical if they are sliced properly. Improperly sliced ham will not only produce uneven portions that are unattractive but will produce more waste and will increase the overall cost. The following slicing technique is recommended to obtain the maximum number of usable slices from either whole or canned ham after it is baked or as it comes from the can.

- Divide the whole ham into three sections. Cut the upper third section straight across the butt end and cut the remaining portion into two even pieces lengthwise.

- Cut the slices lengthwise with the grain, across the butt section. Cut the other sections across the grain as shown in figure 8-4.

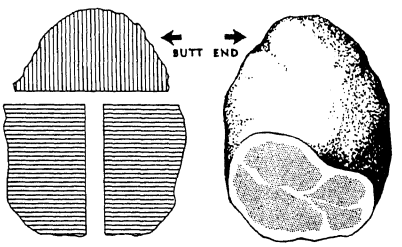


Figure 8-4.—Slicing boneless ham.

RABBIT

Like other lean meats such as poultry and fish, rabbit is also a good source of high-quality protein. The military procures ready-to-cook, cut-up frozen rabbit. The usual method of preparation is frying.

OTHER MEAT ITEMS

Other meat items that are used in the general mess are as follows:

1. Beef liver is available in portion-cut 4-ounce slices.
2. Corned beef is a frozen product commercially prepared by pickling boneless brisket, rump, or other selected beef cuts in a salt solution (brine). Also, it may be used for such entrees as corned beef and cabbage or for sandwiches.
3. Dried beef is a frozen product commercially prepared from beef rounds cured with sugar and salt, dried, and sliced paper thin. It is normally used for creamed chipped beef on toast.
4. Sausage is finely or coarsely chopped meat (pork, beef, or combination of beef and pork) that is stuffed in edible casing and seasoned with spices and herbs. Depending on the type of sausage, it may be cooked or uncooked. Check the label for cooking instructions. Types of sausages available include the following:

a. Pork sausage is uncooked and available in 1- to 6-pound rolls and in 3-ounce patties.
b. Breakfast sausage (beef and pork) is a precooked, link-style sausage; no preparation is needed except heating.
c. Breakfast sausage, all beef, is an uncooked, link-style sausage.
d. Specialty sausages can be served as a sandwich or an entree. The following varieties are available:

- Bockwurst and bratwurst are prepared from pork or beef or a combination. They are seasoned with spices and herbs and require cooking.

- Knockwurst is a highly seasoned sausage prepared from beef. It requires cooking.

- Italian sausage is available either mild (sweet) or hot. It is prepared from pork and requires cooking.

- Pepperoni is a precooked, highly seasoned beef sausage. It is available whole or diced.

- Polish sausage is a highly seasoned, thick, long smoked pork, or pork and beef sausage that is cooked. It is also know as kielbasa. It requires heating.

5. Other types of specialty meats include the following:

a. Pastrami is precooked. It is commercially produced by curing and smoking beef with spices. Pastrami is usually served as hot slices in sandwiches.
b. Chitterlings are small pork intestines. They are available frozen or canned (raw or precooked).
c. Pigs' feet are the front feet of a pig. The product is raw and requires cooking.
d. Cold cuts, including pressed ham, pickle and pimento loaf, turkey roll, bologna, salami, luncheon meat, thuringer, and liver sausage, once thawed, are sliced and served for sandwiches or cold-cut platters. Bologna, salami, and luncheon meat may be grilled and served as breakfast meats.
e. Frankfurters, popularly called hot dogs or weiners, are similar to sausage products, but are always precooked. Only heating is required before serving. After heating, they may be served in a sandwich roll (hot dog) or as an entree; for example, frankfurters and baked beans. There are two sizes: regular (10 links per pound) and one-fourth pound.
f. Scrapple is available frozen. It is made from cornmeal, pork scraps, and seasonings. To prepare, thaw, slice and fry. Check the label directions. Scrapple is usually served at breakfast.

MEAT COOKERY

Meat is by far the most popular food item on the menu. Meats can be classified into two broad categories, tender and less tender cuts.

The tenderness of meat depends on the amount of connective tissue in the meat and the location of the muscle on the animal. Muscles from the neck, leg, shoulder, and joint are less tender than muscles in the rib and loin areas. Meat is held to the bone by tendons and ligaments that are composed of connective tissue. Surrounding each muscle is an outer coating of fat. Fat cells are distributed inside the lean tissues. This fat, which is intermingled with lean muscle tissue, is called marbling. Meat muscle is composed of both solids and moisture. The retention of moisture is important in cooking. Preparation, according to the AFRS directions, will minimize moisture loss. The proportion of lean muscle to fat to bone in meat varies. Adequately marbled meat is juicier and is generally more tender than meat that has little or no marbling.

COOKING METHODS

The method used to cook meat is determined by the kind of meat and the tenderness of the cut. Tough cuts require moist heat and long slow cooking. However, tender cuts require a dry heat method.

Dry Heat Methods

Dry heat refers to cooking meat uncovered without adding moisture. Dry heat methods include roasting/baking, broiling, and grilling. These methods are used for tender cuts of meat that have little connective tissue.

ROASTING AND BAKING.—The word *roasting* describes the cooking of meat by dry heat in an oven. Any tender cut of beef, pork, or lamb may be roasted. Baking is the preparation method used in roasting ham, meat loaf, fish, and some chicken recipes.

Roasting pans should be of a heavy material with low sides that allow meat to be cooked by hot air freely circulating over and around the meat. Open pan roasting will brown roasts evenly. Do not crowd roasts. Season meat as directed on the AFRS recipes. If racks are available, place roasts on racks to allow juices and fat to drain from roasts as they are cooked.

The following rules pertaining to roasting apply to beef, veal, pork, and lamb. Included with each rule is the "why."

- Use a moderately low oven temperature (325 °F) so the roast will be uniformly done throughout, the cooking losses will be moderate, the meat will be more palatable, and the roast will be plump and full. High temperatures cause

excessive shrinkage, uneven cooking, and decreased juiciness and tenderness.

● Do not sear meat before roasting. Searing toughens the outer layer of meat, increases cooking losses, causes a loss of fat, and contributes to excessive shrinkage.

● Place roast fat side up on the pan. This eliminates basting; as the meat cooks, it will baste itself with the melting fat.

● Add salt to the roast before or after it is cooked. Salt penetrates less than half an inch below the surface and any salt added before the roast is cooked adds flavor to the drippings.

● Unless specified in the AFRS recipe, never cover a roast. If the roasting pan is covered, the moisture escaping from the meat will surround it and the meat will be cooked by moist heat.

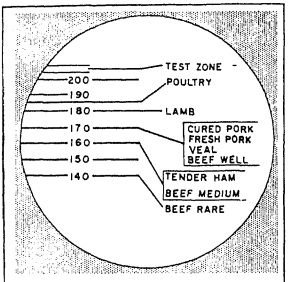
● Do not add water. Roasts cooked without water are juicier and more flavorful. The only reason for adding water would be to keep the drippings from becoming too brown. This will not happen, however, when low oven temperatures are used.

● Do not flour the roast. Drippings from a floured roast may be a more attractive brown, but the same results can be obtained by browning flour in the drippings when you make the gravy.

● Use a meat thermometer to tell when the roast is done. The meat thermometer is the only accurate measure of doneness. The length of cooking time depends on the temperature of the oven, the weight and shape of the roast, and the kind of meat. A dial-type meat thermometer is shown in figure 8-5.

The thermometer should be inserted into the center of the main muscle (the thickest part of the meat) so that the tip of the thermometer does not touch the bone, gristle, or the fat. As the heat from the oven penetrates the meat, the internal temperature at the center of the roast gradually rises and this rise is registered on the thermometer. When the thermometer registers the desired temperature for that particular kind of meat, the roast is ready to be removed from the oven.

● Boneless meat will require a somewhat longer cooking period than meat with bones. A



CAUTION: Using thermometer in oven above 400°F is not recommended.

1. The roasting temperatures indicated on the thermometer are approved by the National Live Stock and Meat Board and Poultry and Egg Board (National).

2. Insert thermometer at least 2 1/2 inches into thickest part of meat at an angle such that dial is easily readable when door is opened. The point should be in the center of the largest muscle, away from contact with bone, gristle or fat.

Figure 8-5.—Dial-type roast meat thermometer.

smaller roast requires more minutes per pound than a larger one. Follow the AFRS recipe that specifies the type of meat required and the proper cooking temperature.

Cooking time is only a guide to meat doneness. Roasts will continue to cook slightly after being removed from the oven. Cooking time depends principally upon the size and cut of the meat, the degree of doneness desired or required, and the cooking temperature. The temperatures at which meats are cooked also determine cooking times. Maintaining even temperatures aids in predicting cooking periods. For information on convection oven cooking, check the AFRS guidelines, specific recipes, and manufacturer's directions for meat cookery.

BROILING AND GRILLING.—Broiling is cooking by dry heat. Conventional and continuous broilers are available in some Navy general messes. For cooking times and temperatures, check the manufacturer's directions for cooking meats. Steaks and hamburgers are generally cooked using broilers. Where broilers are not available, grills are used.

Grill steaks, beef patties with soy, ham slices, bacon, liver, and pork sausage are suitable for grilling. In grilling, the meat is placed directly on

the ungreased griddle. The heat is transmitted to the meat from the hot metal of the griddle. A moderate temperature is maintained that prevents the meat from overbrowning. Enough fat cooks out to keep the meat from sticking. Excess fat should be removed as it collects to prevent the meat from frying. Tongs or a food turner should be used to turn the meat. Do not use a fork to turn the meat because puncturing the meat with the tines of a fork allows the juices to escape. If the juices escape the meat becomes dry and coarse. Check the AFRS for cuts of beef, lamb, and pork that may be grilled.

Pork requires thorough cooking to bring out its full flavor. Braised pork chops are more desirable from the standpoint of aroma, texture, tenderness, and flavor of the lean meat. If pork chops and pork steaks are grilled, they require additional cooking in the oven to ensure complete doneness. Veal is usually not grilled because it is a lean meat and has an abundance of connective tissue that requires long, slow cooking.

Grilled meat is usually turned only once. The seasoning is applied to the cooked side just after it is turned.

Moist Heat Methods

Moist heat refers to cooking with added liquid or steam. Moist heat methods include braising, simmering, and stewing. These methods are used to cook less tender cuts of meat.

BRAISING.—Braising is used to prepare tough cuts of meat. Check the AFRS for those cuts of meat that must be braised.

To braise, meat is browned in a small amount of added fat, then covered and cooked slowly in the juices from the meat or in a small amount of liquid that is added. The liquid may be water, stock, vegetable juices, thin sauces, or a combination of these liquids. Just enough liquid to start the natural juices in the meat should be used. Only a small amount of liquid should be added at a time as the color and appearance of both the meat and gravy are better if the liquid is kept to a minimum. Pot roast and Swiss steak are examples of this method of moist heat cooking. Flavor is improved by dredging the pieces of meat in seasoned flour, then browning them in a small amount of fat, or by marinating the meat in a well-seasoned mixture of vinegar, vegetables, and spices (such as sauerbraten). Browning the meat develops flavor and aroma, and a rich brown color is typical of well-prepared braised dishes.

After the meat has been browned, the temperature is reduced, and cooking is continued at a low temperature so that the liquid will not boil. Braising may be done in the oven, on top of the range in a deep pot, or in the steam-jacketed kettle. Whichever means is used, the container must be tightly covered. The aim of braising is to produce a piece of meat that is evenly browned on the exterior, tender, juicy, and evenly cooked throughout, with no stringiness. Meat cuts that are braised are always cooked to the well-done stage.

STEWING AND SIMMERING.—The second method of moist heat cooking is stewing. It is the method used in preparing the least tender cuts of meat. Small pieces of meat cooked in water are said to be STEWED; large pieces are said to be SIMMERED. In each case, the meat is covered with water and simmered—kept just below the boiling temperature. It is never boiled. Boiling the meat for the length of time required to tenderize it will dissolve the connective tissue completely and the meat will fall apart and become stringy and dry.

Vegetables may or may not be added to the stew. If they are added, they should be cooked to the "just tender" point and should still retain their color, shape, and flavor after they are cooked. The gravy should be light and smooth and have the same flavor as the meat. The meat is dredged in seasoned flour and browned in a small amount of fat. Stews are made in a steam-jacketed kettle that has a hinged lid. The stew should be held at the simmering temperature until the meat is done, usually about 2 hours. Meat cooked in liquid is tender and juicy and holds its shape when sliced. Usually the steam-jacketed kettle is used so that the meat can be completely submerged in the liquid at all times.

FRYING.—Meat may be fried in deep fat, in an oven by panfrying, or in a pan with a small amount of fat by sauteing.

Sauteing or shallow panfrying is accomplished on the range or griddle in a pan with just enough fat to keep the meat from sticking. This method of cooking is sometimes more economical and less work when a small amount of food is to be fried.

The fat should be heated to the proper temperature before the meat is placed into it; otherwise, the meat will absorb too much of the fat and will be unappetizing. The correct temperatures are indicated on the recipe cards.

may be fried with good results.

DEEP-FAT FRYING.—Deep-fat frying is accomplished by completely immersing the meat in deep fat and allowing it to remain in the fat until it is done.

Meat that is to be deep fried should be breaded to prevent an excessive loss of moisture. It is also important to have the fat at the proper temperature. If it is too hot, the exterior of the meat will brown excessively before the interior has had time to cook. If it is too cool, the meat will absorb too much fat and be greasy. A deep-fat thermometer is the only accurate way to determine the temperature of the fat.

For best results, the pieces to be fried should be of uniform size, and the basket should not be overloaded. Just enough pieces should be placed in the basket to completely cover the bottom of the fry basket. This method permits the hot fat to completely surround the meat and ensures thorough cooking. When the basket is overloaded, the fat is cooled excessively, and the hot fat cannot circulate freely.

Fry only one kind of food at a time. Fry the meat as quickly as possible and only as needed (practice batch cookery). Drain to remove excess fat after cooking, then salt or season. NEVER SALT OR SEASON FOOD DIRECTLY OVER THE FRYER.

OVEN FRYING.—Oven frying is similar to baking or roasting except fat is added. Food may be oven fried with or without breading.

COOKING FROZEN MEAT

Most of the meat procured for use in Navy messes is frozen. Most cuts of meats should be thawed or tempered before they are cooked. Bulk ground beef, diced meat, and Swiss steak must be completely thawed before they are cooked.

If cooked in the frozen state, roasts will require approximately one-third to one-half additional cooking time. Seasoning must be delayed until the outside is somewhat thawed and the surface is sufficiently moist to retain salt, pepper, and flour. The insertion of the meat thermometer can be delayed until the roasts are partially thawed.

Grill steak, pork chops, and beef patties require tempering before cooking.

sufficient to facilitate separation and handling of the frozen product. Internal temperature of the food should be approximately 26° to 28°F. The additional time required to cook meats completely done while frozen ties up the cook's time, as well as grill space. Grill steak should never be completely thawed before grilling. Once thawed, the steaks will be dry and tough. Some styles may also fall apart.

Liver should be partially thawed to ensure a moist and palatable product and to provide slices that are uniform and attractive in appearance. If liver appears greenish after grilling, it is not spoiled.

POULTRY

Poultry is a menu favorite. Chicken, duck, Rock Cornish hen, and turkey are the main poultry items used in Navy messes.

INSPECTION AND GRADING

All poultry is inspected to make sure that it is free from disease and is slaughtered, dressed, and processed in a clean manner. Canned, boned chicken and turkey are also inspected for wholesomeness.

Poultry may also be graded as to quality. Grading is done according to overall appearance, meatiness, amount of fat, and the presence or absence of defects (torn skin, discoloration, bruises, and so forth).

USDA grades A, B, and C are used to indicate poultry that has been officially graded.

Grades B and C are not as attractive as grade A but are still wholesome. They may have defects and faulty conformation and be lacking in meat content and fat cover. Examples of grade stamps are shown in figure 8-6.

STYLES

Various styles of chicken, duck, and turkey are available for use in Navy messes.

Chicken

Frozen broiler-fryer chickens weighing 3 to 3 1/2 pounds are procured in several styles:

(1) Whole
(2) Cut-up

U. S. INSPECTION STAMP

COMBINED U. S. INSPECTION AND GRADE STAMP

U. S. GRADE STAMP

Figure 8-6.—Inspection and grade stamps for poultry.

(3) Quartered
(4) Breasts
(5) Legs
(6) Thighs

(7) FROZEN ROCK CORNISH HENS are young chickens weighing 20 to 25 ounces that have been produced by crossbreeding the Cornish chicken with other chicken species. They require only thawing and splitting in half and washing under cold water before cooking.

(8) CANNED, BONED CHICKEN offers space and weight savings. It needs no refrigeration and is usually stocked when freezer space is limited. Canned chicken may be used in recipes requiring diced chicken, such as chow mein, tetrazinni, baked chicken with noodles, and chicken salad.

(9) FROZEN CHICKEN, BREADED, precooked, drumsticks and thighs and/or breast halves, is available for reheating either in the oven or in the deep-fat fryer. The product can be reheated quickly and used as an entree item or on the speedline.

(10) FROZEN, CHICKEN FILLET, BREADED, precooked, also can be reheated quickly and used for sandwiches or as an entree item.

(11) FROZEN CHICKEN FILLET NUGGETS, BREADED, precooked, can be reheated quickly and used as an entree item or on the speedline.

Duck

Frozen, whole roaster ducks weigh 3 to 5 pounds and require only thawing and washing before cooking.

Turkey

Turkey for Navy messes are procured in the following styles:

(1) FROZEN, WHOLE TURKEYS vary widely in weight. Hen turkeys have a minimum weight of 12 pounds; tom turkeys weigh 16 to 24 pounds. Self-basting and regular whole turkeys are procured. An 8- to 12-pound whole turkey is available for use aboard submarines.

(2) FROZEN, BONELESS, RAW TURKEY ROLLS weigh 9 to 12 pounds and contain the same proportion of light and dark meat as whole turkey. Raw turkey rolls require cooking.

(3) CANNED, BONED TURKEY is similar to canned, boned chicken. It may be used to prepare several turkey entrees or substituted in any recipe specifying diced chicken. See the AFRS.

(4) FROZEN CHICKEN AND TURKEY GIBLETS are available for preparation of giblet gravy. Thaw and use according to AFRS directions.

THAWING AND CLEANING POULTRY

Thaw frozen chicken, Rock Cornish hen, turkey, and duck before cooking. ALL POULTRY MUST BE THAWED AT CHILL TEMPERATURES (36° to 38°F). NEVER THAW IN WATER.

THAWED POULTRY SHOULD NEVER BE REFROZEN. Refreezing lowers quality and promotes bacterial growth.

USE THAWED POULTRY AS SOON AS POSSIBLE. DO NOT HOLD IN REFRIGERATION MORE THAN 24 HOURS. Longer holding lowers quality and risks spoilage.

Whole turkeys, Rock Cornish hens, ducks, and chickens are wrapped in plastic bags. Remove whole poultry from the shipping containers, but leave in the plastic bag. To speed thawing, spread them out so that air can circulate. Cut-up or quartered chickens should be thawed in the intermediate carton. If this carton has an overwrapping, remove it.

Turkeys weighing more than 16 pounds require 3 to 4 days to thaw, at 36° to 38°F. Turkeys weighing under 16 pounds require 2 to 3 days. Whole chickens and ducks require 18 to 24 hours and Rock Cornish hens need 12 to 18 hours.

CLEAN all poultry after thawing by removing any spongy, red lung tissue inside the back, loose membranes, pinfeathers, and skin defects. Wash poultry inside and out under cold, running water and drain. Refrigerate until needed.

NOTE: All cutting boards used for preparing poultry must be thoroughly sanitized after each use.

COOKING POULTRY

Procedures for cooking whole turkeys, Rock Cornish hens, chickens, and ducks are described in the AFRS. Poultry may be cooked by using either moist or dry heat. These methods and their variations are explained as follows.

Dry Heat Methods (Roasting/Baking)

Care must be taken to prevent the poultry skin from becoming too hard and dry while it is roasting. To prevent dryness, rub the skin of the chicken or turkey thoroughly with salad oil or shortening. This is not necessary for duck because of its high fat content. If self-basting turkey is supplied, follow the package instructions for cooking. Place the poultry in an open pan, breast side up, on a V-shaped rack if available. A low oven temperature (350°F) should be used for chicken and Rock Cornish hen. Duck and turkey are cooked at 325°F.

If the bird starts browning too soon, aluminum foil may be placed over it to prevent overbrowning. The formation of a hard, dry crust can be prevented by occasionally basting the bird with pan drippings during roasting.

As turkey is larger than most other poultry, it is more difficult to cook to the well-done stage without overdoing it. Care must be taken to cook it no longer than necessary; overcooking will result in the loss of juices and stringy, dry meat. The use of a meat thermometer inserted in the thickest part of the thigh muscle will give the internal temperature of the turkey. When the thermometer registers an internal temperature of 180° to 185°F, the turkey has reached the required stage of doneness. The AFRS contains a timetable for roasting unstuffed turkeys.

Moist Heat Methods

In moist heat methods, the water should simmer rather than boil to avoid the toughening effect of high temperature on the fibers. Depending upon the cooking method used, temperatures will vary, but slow to moderate temperatures should be used at all times to develop maximum flavor, tenderness, color, and juiciness. Intense heat will harden and toughen the protein, shrink the muscles, and dry out the juices, thus producing a less palatable product. All poultry should be cooked to the well-done stage. Follow the AFRS directions for preparation.

PANFRYING.—To panfry poultry, wipe the pieces dry, season them with salt and pepper, and roll them in flour. If a heavier coating (crust) is desired, dip the pieces in batter or a milk and egg mixture and roll them in soft bread crumbs before they are fried. Put approximately one-half inch of frying fat in a heavy frying pan and preheat to a temperature of 360° to 365°F. Add the pieces of poultry to the hot pan. Turn the pieces frequently. Use tongs or two spoons to turn the pieces. Do not use a fork because puncturing the meat with the tines of the fork allows the juices to escape. Cook until well done.

OVEN FRYING.—Dip the pieces of poultry in flour, milk and egg mixture, then into crumbs. Place poultry in a shallow pan. Pour the fat over the pieces to ensure an even coating. Cook in the oven.

DEEP-FAT FRYING.—To deep-fat fry poultry, wipe the pieces dry, season them with salt and pepper, and roll them in flour. If a heavier coating (crust) is desired, dip the pieces in batter or a milk and egg mixture and roll them in soft bread crumbs before they are fried. Place enough fat in the pan to completely cover the pieces of poultry. Preheat the fat to 325°F, then carefully lower the pieces into the fat. Do not crowd. The chicken may be cooked until done, or it may be

browned in deep fat and placed in the oven to complete the cooking. Always allow the fat to regain the proper temperature before reloading the fryer.

Preparing Dressings

The terms *stuffing* and *dressing* are often used interchangeably, but they both actually refer to dressing. If the dressing is cooked inside the poultry, it is referred to as stuffing.

Poultry stuffed with dressing is not recommended for large-scale food operations such as general messes because it increases cooking time, imposes a larger workload on foodservice personnel, and it does not improve or enhance the flavor of the meat. Most importantly, stuffing poultry is a sanitation risk and increases the possibility of food-borne illness.

The recipe service includes the basic bread dressing recipe and its many variations that may be served with either chicken or turkey.

Excellent dressings can be prepared that are not cooked inside the birds. Pan-baked dressing requires more moisture and is less firm than stuffing, but is easier to prepare and easier to serve. Good dressing is light and moist, not heavy and pasty.

Duck contains a much higher percentage of fat than other poultry and stuffing in duck is less palatable because it absorbs so much of the fat during cooking. Ducks may be stuffed with bread or apples for the purpose of absorbing some of the fat; the stuffing may then be discarded at the end of the cooking period.

Preparing Giblets

The giblets (gizzard, heart, and liver) need no preparation other than ordinary washing in cold water before cooking. One precaution—the liver should be inspected closely to detect any sign of bile contamination. The bile sack is often broken during its removal from the liver. Bile damage is easily recognizable by a greenish brown or yellow color on the liver. Any liver indicating bile damage is unfit to eat and must be discarded.

After washing the giblets in cold water, place them in just enough cold salted water to cover, bring to a boil, then reduce the heat and simmer approximately 1 hour or until they are tender. (Livers cook much faster than gizzards and should be cooked separately.) Save the stock and chop the giblets (do not grind) for use in the gravy or dressing. Refrigerate them until they are ready to use.

TURKEY

The Navy procures boneless, frozen, cooked, and uncooked turkey rolls. These rolls consist of light and dark meat. The instructions for preparing each type are included with the specific turkey roll and recipes are included in the AFRS. The boneless turkey roll is equal in quality and flavor to whole turkey, and it is easier and faster to prepare. It also permits accurate portion control, saves storage space, and eliminates waste. However, roast whole turkeys are often prepared for special meals.

Carving Roast Whole Turkey

Roast whole turkey is usually carved in the galley. The carving techniques described below are the procedures that should be followed for carving turkey in the galley and will provide generous, accurate portions.

Let the turkey stand for about 30 minutes after it is removed from the oven before carving. This will allow the juices to be absorbed, the flesh to become firm, and the turkey can then be sliced with greater ease and efficiency.

To carve the turkey follow the procedures outlined below:

- Use a sharp, long-bladed knife. Place the legs to your right if you are right-handed, to the left if you are left-handed. Carve the side farthest away from you.

- Remove the leg by holding the drumstick firmly with the thumb and forefinger. Cut through the skin by drawing the knife back and forth and sever the joint. Press the leg away from the body with the flat side of the knife. Cut the remaining skin on the back. Remove the oyster (choice dark meat in spoon-shaped bone on back) with the leg.

- Disjoint the drumstick and the thigh by holding the leg at a right angle to the board. Cut through the meat to the bone; then, hold the thigh with the knife and press down with the other hand until the joint snaps.

- Slice the leg meat by holding the drumstick at a right angle to the board, cutting down; turn the leg to get uniform slices. To slice the thigh, straddle the bone with a fork and cut into lengthwise strips.

- Remove the wing by placing the knife at a right angle to the breast, about 1 1/2 inches above the wing, and cut straight through the skin and the wing joint.

- To remove the breast from the back, insert the knife along the top and cut slowly, guide the knife along the curve of the rib section. Remove the breast in one piece. Place the breast on the slicing board and slice pieces one-fourth inch thick. You may slice the breast meat directly from the bird. Hold the bird with a fork straddling the breastbone or insert the fork in the ribs opposite the side being carved. Start the first slice just above the place where the wing was removed and with the knife parallel to the breast; use a sawing motion and cut the slices about one-fourth inch thick.

- Arrange the sliced turkey in shallow pans; fill one-half of the pan with white meat and the other half with dark meat. Cover the pan to keep the meat moist and appetizing. A small amount of broth may be added, if desired.

- Place the sliced turkey in the steam table inserts. Do not permit the steam table temperature to go above 200°F as the meat will become dry and continue cooking.

- To complete the trimming of the bird, cut all remnants off the carcass. This meat can be used for sandwiches, creamed, or a la king dishes and soups.

There are two advantages to this method of carving. It ensures portion control and makes it possible to use all meat on the carcass and avoids waste.

On special occasions roasted whole turkey may be carved on the serving line. This allows everyone to see and share in the festivity that a holiday bird symbolizes.

Be sure to store all unused portions of the bird properly. Place the sliced meat on a tray and cover it loosely with waxed paper before it is placed in the refrigerator. Place trimmings and other edible parts in the refrigerator if they are not to be used immediately.

Carving Boneless Turkey Roll

Boneless turkey roll may be roasted in the frozen state. If cooked while frozen, allow 1 to 2 hours additional cooking time. If the turkey starts to become too brown, place a piece of foil loosely over the bird for the last hour of cooking. After the turkey is roasted, let it stand for at least 30 minutes, preferably 1 hour, before it is served, so that the juices can be absorbed and the turkey can be sliced more easily and effectively.

If feasible, machine slicing of boneless turkey is preferable to hand slicing. However, regardless of which method is used, the following slicing procedures are recommended:

- Remove the netting and skin.

- Cut in slices about one-fourth inch thick.

- Place the slices in a shallow insert pan and cover with aluminum foil.

SEAFOOD

Like meat and poultry, seafood products are excellent protein foods and an excellent source of minerals and vitamins.

There are more than 200 species of fish and shellfish sold in the United States. If you are looking for variety, they give you more choice than any other food group. You can buy fish and shellfish—fresh, frozen, and canned.

The types of seafood procured by the Navy for use in the general mess are listed in figure 8-7. These items are prepared and handled under contract specifications to ensure top quality. When requesting these items from a supply activity, you should clearly identify them by national stock number and description.

Seafoods are highly susceptible to spoilage, and receipts from either Navy or commercial sources should be carefully checked for quality. Refrozen seafood should not be accepted; it will usually have soft, flabby flesh, a sour odor, and may show discoloration. Occasionally, you may have to use fresh fish in your menu and you

Type	Form	Description
Cod	Frozen	Fillets, skinless; breaded fish portions or sticks
Flounder	Frozen	Fillets, skinless; breaded fish portions or sticks
Haddock	Frozen	Fillets, skin on or skinless; breaded fish portions or sticks
Halibut	Frozen	Steaks, skin on
Perch	Frozen	Fillets, skin on or skinless; breaded fish portions or sticks, partially precooked batter-dipped fish portions
Pollack	Frozen	Fillets, breaded fish portions or sticks, partially precooked batter-dipped fish portions
Rockfish	Frozen	Fillets, skinless
Salmon	Canned	Pieces
Salmon	Frozen	Steaks, skin on
Sardines	Canned	Headless, packed in olive or vegetable oil
Tuna	Canned	Chunks or solid pack, packed in water
Whiting	Frozen	Fillets, skin on or skinless, breaded or partially precooked batter-dipped fish portions, breaded fish sticks
Crab meat	Canned	Pieces
Crab meat	Frozen	Shredded, minced, cooked
Clams	Canned	Minced, packed in natural juices
Clams	Frozen	Shucked
Spiny Lobster Tail	Frozen	Tail
Lobster	Fresh	Whole
Lobster	Frozen	Whole
Oysters (Eastern or Gulf)	Frozen	Shucked, IQF
Oysters (Pacific)	Frozen	Breaded, IQF
Scallops	Frozen	Shucked
Scallops	Frozen	Breaded, IQF
Shrimp	Canned	Whole
Shrimp	Dehydrated	Whole, cooked
Shrimp	Frozen	Breaded, whole, deveined
Shrimp	Frozen	Whole, peeled, deveined, IQF
Shrimp	Frozen	Whole, unpeeled

* Seasonally and locally available fresh and frozen fish items are authorized for all general messes through the Defense Subsistence Offices.

Figure 8-7.—Fish and shellfish authorized for general messes.

should be able to distinguish the good products from bad.

FISH

Fish is an excellent source of protein, minerals, and vitamins. Fin fish (vertebrates) have backbones and fins. Examples include salmon, catfish, cod, flounder, haddock, perch, pollack, rockfish, trout, and whiting.

All fresh fish will spoil rapidly if mishandled. Keep under refrigeration and use within 3 days of receipt. Keep frozen fish at 0°F or below. THAW FISH AT 36°F—NEVER IN WATER. Handle thawed fish carefully to prevent breakage. NEVER REFREEZE FISH ONCE THAWED.

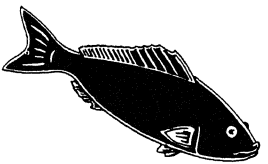
Most general messes purchase fish in the form in which it will be prepared. Fresh fish may be purchased in a variety of cuts or

forms as illustrated and described in figure 8-8.

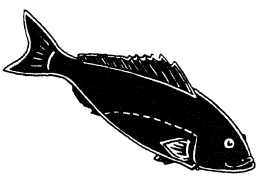
Selecting Fresh Fish

When you are buying fresh fish locally, you should check for quality and freshness. Fresh fish should have the following characteristics:

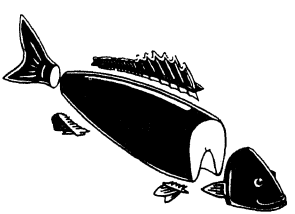
- Eyes—bright, clear, and full
- Gills—reddish pink and free from slime



WHOLE OR ROUND fish are those marketed just as they come from the water. Before cooking, they must be scaled and eviscerated (which means removing the entrails). The head, tail, and fins may be removed if desired, and the fish either split or cut into serving-size portions, except in fish intended for baking. Some small fish, like smelt, are frequently cooked with only the entrails removed.

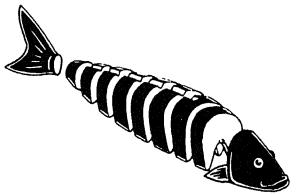


DRAWN fish are marketed with only the entrails removed. In preparation for cooking, they generally are scaled. Head, tail, and fins are removed, if desired, and the fish split or cut into serving-size portions. Small drawn fish, or larger sizes intended for baking, may be cooked in the form purchased after being scaled.

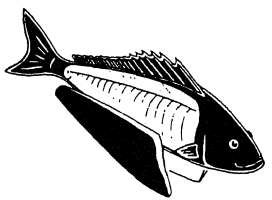


DRESSED fish are scaled and eviscerated, usually with the head, tail, and fins removed. The smaller sizes are ready for cooking as purchased (pan-dressed). The larger sizes of dressed fish may be baked as purchased but frequently are cut into steaks or serving-size portions.

Figure 8-8.—Market forms of fish.



STEAKS are cross-section slices of the larger sizes of dressed fish. They are ready to cook as purchased, except for dividing the very largest into serving-size portions. A cross section of the backbone is usually the only bone in the steak.



The sides of the fish, cut lengthwise away from the backbone, are called FILLETS. They are practically boneless and require no preparation for cooking. Sometimes the skin, with the scales removed, is left on the fillets; others are skinned. A fillet cut from one side of a fish is called a single fillet. This is the type of fillet most generally seen in the market.

BUTTERFLY FILLETS are the two sides of the fish corresponding to two single fillets held together by uncut flesh and the skin.

STICKS are pieces of fish cut lengthwise or crosswise from fillets or steaks into portions of uniform width and length.

Figure 8-8.—Market forms of fish—Continued.

- Scales adhering tightly to the skin, bright colored with characteristic sheen
- Flesh—firm and elastic, springing back when pressed, not separating from the bones
- Odor—fresh, free from objectionable odors

Fresh fillets, steaks, and chunks should also have a mild, fresh odor, and the flesh should have a fresh-cut appearance without any traces of browning or drying.

Frozen Fish

Frozen fish compares favorably in appearance, flavor, and food value with fresh fish and may be used interchangeably. Frozen fish should be delivered still frozen and should remain frozen until just before it is cooked.

Thawing Frozen Fish

Frozen fish fillets and steaks should be thawed gradually under refrigeration and used as soon as possible thereafter. The ideal temperature range for the thawing period is 36° to 38°F. During the thawing period, the fish should be kept in the box just as it was received from the supplier. The box furnishes insulation that permits all the fish to thaw uniformly. If not properly protected fish is thawed at temperatures that are too high, the surface may begin to spoil before the inside is completely thawed. Frozen, breaded seafood products should not be thawed before they are cooked. In general, a few helpful rules include the following:

- The amount of fish thawed should not exceed the amount to be served.
- Fish should be thawed just before they are used; they should not be refrozen.
- Seafood products should not be thawed under cold running water.

SHELLFISH

Shellfish have a partial or complete shell covering. There are two classes of shellfish. Crustaceans have semihard to hard shells over the back and claws and soft shells under the body. Shrimp and lobster are examples. Mollusks have two very hard shells of the same size, which are tightly closed when the mollusk is fresh. Sort and discard any open shells before cooking. Claws, oysters, and scallops are examples.

The chief varieties of shellfish available from Navy or commercial sources for use in the general mess include oysters, clams, crabs, scallops, lobsters, crawfish, and shrimp.

Oysters

Shucked oysters are those that have been removed from the shell. Shucked oysters should be plump, have a natural creamy color, have a clear liquid (natural juices), and be free from shell particles. Fresh shucked oysters are generally packed in metal containers or waxed cartons. The cartons should be refrigerated or surrounded by ice.

Pacific and Eastern gulf oysters are available shucked, frozen, and packed in natural juices. They are also available individually quick frozen (IQF).

IQF oysters may be issued without thawing an entire batch. Frozen Pacific shucked oysters are larger than the East Coast varieties. ALL OYSTERS, ONCE THAWED, SHOULD NEVER BE REFROZEN. THEY SHOULD NEVER BE EATEN RAW. For best results, thaw just before cooking.

If frozen breaded oysters are to be deep fried, then keep them frozen until ready to use.

Clams

Clams are procured as either frozen or canned minced. They are shucked and packed in natural juices. Clams are available as either frozen regular or IQF. They should not be thawed until they are to be used. IQF clams are easier to handle since only the amount needed is removed from the container. Once removed, they should not be refrozen, but they should be drained and used in chowder. Canned clams should be drained and used like the frozen ones.

Crab Legs

Crab legs is a similar food item in flavor to lobster. The legs should be split before cooking. Steam or boil and serve with lemon wedges and drawn butter.

Crab Meat

Crab meat is available in canned and frozen forms. It may be used in crab cakes, salads, and sandwiches. Both forms are fully cooked and ready to use. Frozen crab meat, once thawed, should be used immediately. DO NOT REFREEZE.

Scallops

Scallops are shellfish, similar to oysters and clams. The excellent flavored adductor muscle, sometimes called the eye, is the only edible part of the scallop.

The Navy procures frozen sea scallops. When thawed, they have a sweetish odor. Frozen breaded scallops are available. They may be deep-fat or oven fried.

Lobster

Lobster is one of the largest species of shellfish. There are two types: northern lobster and spiny lobster. Northern lobster, the true lobster, is distinguished by its large heavy claws (fig. 8-9).

Whole lobsters are available fresh and frozen. When cooked, the shell turns a bright orange-red color. Fresh and frozen lobsters are very perishable. Keep fresh lobsters alive until ready to use. DO NOT FREEZE. Frozen whole lobsters are commercially available wrapped in polyethylene film. DO NOT THAW BEFORE COOKING. Keep frozen at 0 °F or below. Follow the AFRS for cooking directions. Be sure not to overcook or lobsters will be tough and dry.

Spiny or rock lobster is distinguished by the absence of large claws and by the presence of its long slender antenna and many prominent spines on its body and legs (fig. 8-10).

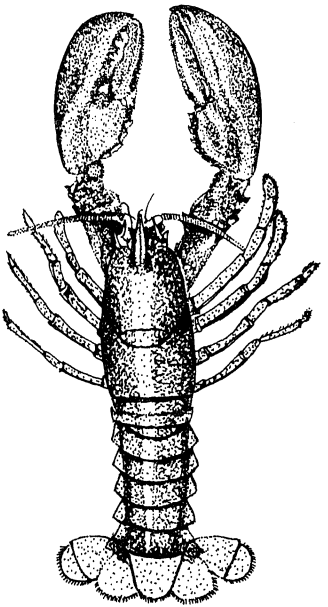


Figure 8-9.—Northern lobster.

Crawfish

Crawfish or lobstertail is sometimes called langosta and is nearly worldwide in its distribution, ranging through the tropical, subtropical, and temperate waters of the Atlantic, Pacific, and Indian Oceans. In the United States it is found in Florida and southern waters.

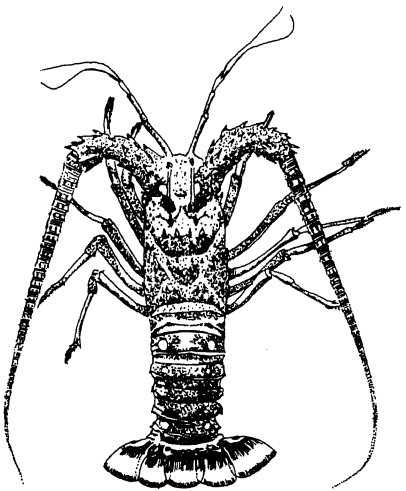


Figure 8-10.—Spiny or rock lobster.

The meat of the crawfish comes almost entirely from the tail. The frozen tails of several species weighing from 4 ounces to more than 1 pound each are sold on the market.

Shrimp

Shrimp are caught in all the coastal waters from Maine to Alaska. Although shrimp vary in color when raw, they differ little in appearance or flavor when cooked. Green shrimp is a commercial term used to denote raw shrimp.

Shrimp may be procured raw, whole; raw, peeled and deveined; raw, breaded, individually quick frozen; and in breaded molded shrimp portions.

COOKING FISH

Fish must be cooked thoroughly but not overcooked. Seafood prepared too far in advance, even though properly cooked, becomes dry, hard, and loses its flavor and succulence. Fish should be baked at a moderate temperature (375 °F). It is done when it flakes easily with a fork. Cooking it too long makes it dry and tough.

Use of Fat

Some fat or oil should be added to practically all varieties of fish, whether light flesh or dark flesh, when they are cooked. The fat helps keep the fish moist while it is cooking and makes it more palatable. If the fish is baked, a solid fat such as butter or shortening may be "dotted" over the fish; melted fat or oil may be brushed on the fish; or sliced bacon or thinly sliced salt pork may be laid over the fish. If the fish is to be deep-fat fried, some fat is added to the fish through the frying process. Fat may also be added to the fish by a sauce made with fat or oil.

Seasoning

Simple seasoning is best for most fish. Salt and pepper should be added in moderation; monosodium glutamate also enhances the flavor. Lemon juice and the milder herbs such as parsley are good seasonings. Seasonings may be added to the fish or placed around it in a baking pan, or they may be incorporated into a sauce or a basting liquid that creates steam and helps to keep fish moist and flavorsome. When fish is cooked in a liquid or a sauce, both the fish and the sauce should be lightly seasoned to avoid a salty product.

CHAPTER 9

BREADS AND DESSERTS

This chapter deals with basic baking terminology, ingredients, and the procedures used to produce breads and desserts. To bake a satisfactory product, you must have a thorough knowledge of these terms, ingredients, and baking procedures.

GENERAL BAKING PROCEDURES

Each baking product has a basic recipe. You should understand this basic recipe and the interaction of its ingredients that causes the dough or batter to rise and produce a satisfactory product.

Each of the different kinds of dough and batter is handled and panned in a specific way to produce the best results. For each type of dough and batter there are instructions as to the proper baking time and temperature. Certain precautions must be observed in the preparation and storing of bakery products to protect them from spoilage.

BAKING AND BREAD-MAKING INGREDIENTS

The basic baking and bread-making ingredients used in bakery products are explained next.

Flour

Flour is a mixture of starch, protein, and other materials. When flour protein is combined with moisture, it forms gluten which gives structure to batters and doughs. Gluten also gives the dough expansion qualities. The kinds of flour used are described as follows:

1. General-purpose flour is a mixture of hard and soft wheat flours. It is used to make cakes, cookies, quick breads, pastries, and pies. It does not have enough gluten strength to make satisfactory yeast bread and rolls.

2. Bread flour is a blend of hard wheat flours. It contains more protein and has a slight granular texture. Good quality bread and other yeast-raised products can be made only with bread flour.

3. Rye flour is combined with white bread flour to make rye bread. The rye flour gluten is too weak to produce an acceptable bread texture. Therefore, it is combined with white bread flour to make rye bread.

4. Wheat base is prepared from the wheat germ, bran, and other fragments of wheat kernels. It has a whole wheat flavor and may be combined with flour to produce whole wheat bread.

In addition to the protein, flour contains various food elements such as fat, carbohydrates, water, minerals, and vitamins. The amount of these elements contained in the flour varies with the type, grade, and storage period of the flour.

Fat

Although the fat content of flour is very low, this fat will become rancid if flour is stored for long periods under warm and humid conditions.

Carbohydrates

Carbohydrates in flour are usually in the form of starch which absorbs water and helps give bulk to dough. Flour that is especially made for cakes and pastries is rich in carbohydrates.

Minerals

Minerals are contained in the bran coat and the germ of wheat, and most of the minerals are lost when wheat is made into white flour. These minerals are returned to flours that are enriched.

Enzymes

An enzyme is a very minute substance produced by a living plant. The mere presence of

an enzyme brings about certain changes in the composition of a material. Diastase and protease are the most important enzymes found in flour. Diastase converts starch to sugar, and the yeast acts upon the sugar to produce carbon dioxide and other fermentation products. Protease softens the gluten and, when this enzyme is lacking, the dough will not have the desired elasticity.

Water

In many bakery products, including bread, the amount of water used is second only to the amount of flour. Water contains minerals. The amount and kind of minerals contained in the water vary from one part of the country to another. These variations affect the properties of the dough and the finished bread.

Water is necessary to form gluten from the protein of flour, thereby giving the dough its elasticity and its gas retaining property. Gluten absorbs twice its own weight of water. The amount of water used determines the consistency and the temperature of the dough after it is mixed. Water dissolves the salt and the sugar, makes it possible for the enzymes to act, and holds the yeast in suspension until it is added to the other ingredients and the fermentation begins.

LEAVENING AGENTS

Leavening agents are gases that cause the dough to rise. The gases are produced by chemical action or introduced by the mixing process, which forces air into the dough. The common types of leavening agents are steam, air, and carbon dioxide gas. These agents are produced by either yeast or baking soda or baking powder.

Air

Air is introduced into the dough by blending (creaming) fat and sugar together, by sifting flour, or by folding in beaten egg whites which already contain air. Steam is used to leaven eclairs and cream puffs.

Yeast

Yeast is a microscopic, one-celled plant that, when conditions are favorable, will multiply by budding or by the division of a cell into two cells. In this process of reproduction, the yeast plant uses available food (sugars) to produce carbon dioxide gas and alcohol. This is known as fermentation.

Active Dry Yeast

Active dry yeast should be suspended in about seven times its weight of water at 105° to 110°F for 5 minutes before it is used. The proper temperature of the water is important, as water that is too cold or too hot will harm the yeast. Make sure the temperature of the water does not exceed 110°F. Active dry yeast does not require refrigeration, but should be stored in a dry and reasonably cool place. When properly stored, dry yeast will keep for many months.

Baking Soda

Baking soda acts as a leavening agent only when there is an acid present. Some of these acids are sour milk or buttermilk, molasses, brown sugar, honey, corn syrup, maple syrup, lemon juice, and vinegar. These are used for different types of quick bread. Only a limited quantity of the acid ingredients can be used for leavening purposes due to the pronounced flavor and heavy texture that baking soda and molasses or syrup give to the products. It is also difficult to determine beforehand the amount of gas that these mixtures will produce. Thus, it is difficult to obtain standard results.

Baking Powder

Baking powder is a leavening agent that contains baking soda, a large amount of starch, and a material that forms an acid when it is mixed with water, thus producing a gas. There are several types of baking powder. The Navy uses a combination-type baking powder, S.A.S., which contains the acids sodium aluminum sulphate and orthophosphate plus sodium bicarbonate and a cornstarch filler. This type of baking powder is moderately double acting; one constituent acts in the batter, while the other does not act until it is heated in the oven. Baking powder is generally preferred over baking soda because it is more reliable.

SALT

Very little salt is used in making bread, but the amount used is essential, for it performs a very important function. Without salt, fermentation in dough is too rapid, and the baked product becomes too coarse. With too much salt, the fermentation process is slowed, and the bread becomes soggy. Salt strengthens gluten and helps

it to expand, improves the color of baked products, and enhances the flavor.

SUGAR

During fermentation, part of the sugar is converted into a form that can be used as food for the yeast. Starches are converted into sugar that produces carbon dioxide gas and alcohol, which cause the dough to expand, making it softer and more flexible.

This sugar in the bread contributes to the color of the crust, the taste of the baked loaf, the toasting qualities of the bread, the texture, the moisture retaining qualities, and the nutritional value. Sugar is also a tenderizer.

All sugars do not have the same degree of sweetness, since sweetness depends upon the refining process through which the sugar has passed. Brown sugar, for example, is less highly refined than white sugar and, therefore, is not so sweet. Brown sugar lends a pleasant taste to cooked or baked products, and syrups can be used as a substitute for regular sugar. Corn syrup, honey, or molasses improves the flavor of cookies and helps retain their moisture.

SHORTENING

Shortening is the animal or vegetable fat that is used in baking. There are two types of shortening—solid and liquid. The solid-type shortening is recommended for use in bread dough because it can be more thoroughly distributed through the dough. The reason for this is that it will not saturate the flour it touches.

Butter

Butter is the fatty constituent of milk that is separated from the other milk constituents by churning. Butter is used most often as a spread, but it has many other uses in food preparation. When butter is substituted for other shortening, you should adjust your recipe. Butter contains salt, milk, and moisture so the salt, milk, and liquid in the recipe should be decreased accordingly. The fat content of butter is less than that of other shortening; therefore, more butter should be used in the recipe.

Other Types of Fats

Shortening compounds are composed of deodorized animal and vegetable fats mechanically blended to give a final product of acceptable elasticity and satisfactory baking quality. There are two types of shortening compound used in the Navy general mess, general-purpose shortening and bakery shortening (emulsifier-type).

Bakery shortening or emulsifier-type shortening is hydrogenated shortening to which an emulsifying agent has been added. This gives the shortening exceptional ability to blend with other ingredients.

General-purpose shortening is a high-grade shortening that has excellent baking qualities. General-purpose shortening should not be substituted in recipes that specify bakery-type shortening.

Salad oils are generally used in the preparation of salad dressing and in recipes that specify oil. Oil should not be substituted for general-purpose or emulsifier-type shortening in recipes specifying those types.

Fluid deep-fry shortening compounds are prepared from vegetable fats combined with animal fats. It is a specially processed, nonfoaming oil that is used only for deep-fat frying.

Action of Shortening

Shortening produces tenderness in baked products, adds flavor and richness, helps produce better grain and texture, and makes the products stay fresh longer.

MILK

Milk is almost a complete food. Nonfat dry milk contains all the food qualities of whole milk except fat. In bread production, nonfat dry milk style A should be used, as this milk is designed specifically for achieving volume, flavor, and crust characteristics desirable in yeast breads. Dry milk can be added by mixing or sifting the milk and flour together, or it can be reconstituted with part of the water in the bread recipe and added to the dough. In either event, it is important that there are no lumps of milk powder in the dough.

The amount of milk used in the dough can be as high as 6 percent nonfat dry milk based on the weight of the flour. The use of more than 6 percent dry milk in the bread dough is detrimental to fermentation. Milk improves the texture, flavor, and keeping quality of bread.

EGGS

Eggs are not used in making white bread but are used in making sweet doughs, cakes, and

cookies. In baked products, eggs supply a high protein, mineral, and vitamin content. The yokes add color, the whites help bind other ingredients, and both combine to add flavor and moisture to the bread.

Fresh eggs should be removed from the refrigerator and warmed to room temperature before they are used in dough. Frozen eggs should be completely defrosted before they are added to the dough and should be well mixed. Dehydrated egg mix may be sifted with the dry ingredients in some baked products containing a high percentage of dry ingredients; the water needed to reconstitute eggs should be added to the required liquid. Reconstituted eggs should be used within 1 hour after they are reconstituted or returned to the refrigerator until they are to be used. Do not hold them overnight.

YEAST FOODS

Yeast foods, known as dough conditioners, have other more important functions than to supply food for yeast. Their major purposes are to condition the water and to assist in the proper fermentation of the dough.

Yeast foods contain three types of functional ingredients:

1. Ammonium salts to supply yeast with a supply of nitrogen for growth
2. Calcium salts to produce the correct amount of hardness in the dough water and to firm the gluten
3. An oxidizing agent to give a firmer, less sticky dough

In addition, these ingredients contain starch and salt to add bulk so that the yeast food will be easier to scale accurately. The use of yeast foods is often determined by the strength of the flour and the fermentation period desired. Not all flours require yeast food. When the flour requires such material, its addition produces bread of larger volume, better grain and texture, and improved loaf appearance. Too much will produce inferior bread with low volume and coarse grain.

BREAD MAKING

Bread is a term that has been used for centuries to describe a mixture of flour, sugar, shortening, salt, and liquid. This mixture is made into dough, then yeast is added to the mixture to make the dough rise.

Two kinds of bread are used in the general mess. One kind includes yeast breads such as yeast-raised breads and rolls, sweet-dough rolls of various kinds, coffee cakes, doughnuts, pizza, and quick breads. The other kind includes products leavened by chemical leavening agents such as baking powder. Some of these products are biscuits, muffins, pancakes, cake doughnuts, quick coffee cake, and corn bread.

Bread is the most important food produced by the baker. It is prepared in greater quantities than any other baked product. High quality and excellent taste must be maintained, regardless of the amount of bread baked.

PROCESSES

The processes described below include not only the steps that you, the baker, perform but also the processes that take place within the dough as a result of your action. When actually preparing bread, you should always follow the steps and procedures in the AFRS.

Mixing the Dough

After you select and weigh or measure the necessary ingredients, the next important step is mixing. Dough may be mixed by hand, but an electric mixer or a bread-dough machine will make the job easier.

DOUGH TEMPERATURES DURING MIXING.—Temperature has a definite influence on the function of yeast and its ability to condition a dough properly to produce a quality bread.

The temperature of the dough can be regulated by considering all the factors that will influence the temperature of the dough and then using water at a temperature that will offset the adverse temperatures. Any desired temperature of the dough when it leaves the mixer may be obtained by a rather simple calculation that first determines the rise induced by mixing and may then be used at all times when the same mixer and the same weight of dough are used.

In controlling dough temperatures in a straight dough, there are three factors involved:

1. Room temperature (RT)
2. Flour temperature (FT)

3. Friction factor (FF) (mixing temperature rise)

For example, add:

RT....	84	Desired dough temperature	80
FT....	82	Multiply by number of factors involved.	3
			240
FF....	14		
	180	Less sum of 3 factors	180
		Desired water temperature	60

Adjusting the temperature of the water used in the dough will control the temperature of the dough. Sometimes it is necessary to use ice to lower the water temperature sufficiently. For example; if the desired water temperature is 40 °F and the available tap water is 70 °F, it will be necessary to use only that amount of ice to lower the temperature of the water 30 degrees.

If a formula calls for 100 pounds of water (the desired water temperature being 40 °F and the tap water temperature 70 °F), use the following formula to calculate the amount of ice required.

$$\frac{\text{Pounds dough water} \times (\text{tap water temperature} - \text{desired water temperature})}{\text{Tap water temperature} + 112}$$

or

$$\frac{100 \times (70 - 40)}{70 + 112} = 16.48 \text{ lb ice.}$$

To determine the actual number of pounds of water required in the dough, subtract the pounds of ice from the weight of water called for in the formula.

Pounds of water called for in formula.....	100.00
Pounds of ice required	−16.48
Pounds of water now required....	83.52

MIXING OPERATION.—The mixing operation accomplishes two functions. First, thorough mixing distributes the ingredients evenly. Secondly, it stretches the dough until the gluten is fully developed and distributed.

In the early stages of the mixing process, water wets the flour and the dry ingredients. At this stage, the dough will be rather wet and lumpy. As the mixing progresses, the flour continues to take up liquid and the dough becomes moderately firm.

When you are using high-speed mixers, the dough will become firm after several minutes of mixing, but the dough has no stretching characteristic. As mixing continues, the dough begins to bond and becomes more elastic. The lumpiness disappears and the dough becomes more firm as the flour picks up more moisture. At this stage, the dough is rather sticky and sticks to the mixer bowl quite easily. Next, the dough becomes less sticky and more elastic. When this happens, the back of the bowl begins to be cleared of dough and eventually becomes completely clear. At this time you must use careful judgment not to allow the mixing to progress too far or the dough will break down to a point where it loses elasticity and becomes sticky and runny. There is no rule governing the mixing time for dough other than the feel and appearance of the dough. When the mixing process is completed, the temperature of the dough should range between 78 ° and 82 °F.

Fermentation

After the mixing operation, the dough is either left in the mixing bowl or placed in a dough trough to ferment.

Fermentation is the chemical change that takes place when yeast (or other leavening agent) in the bread releases carbon dioxide gas, causing the dough to rise. The fermentation period is the time that elapses between the mixing of the dough and the time the yeast is killed by the oven heat. The correct temperature for the dough during fermentation is indicated on the recipe card. A higher temperature will cause the growth of undesirable bacteria (wild yeast) and excessive acidity, which will result in a coarse-grained bread of poor flavor.

The length of the fermentation period depends on the amount of yeast used, the strength of the flour, and the temperature during fermentation. Too much yeast and higher temperatures than those designated cause the dough to rise too fast. Insufficiently fermented or conditioned dough is called "young dough" while that which has fermented too long is known as "old dough."

Punching

Punching the dough after it rises develops the gluten and also redistributes the yeast cells. The temperature of the dough is equalized, and some of the carbon dioxide gas is forced out. Yeast dough is ready for punching when it is light and approximately double in size. To test the dough

to determine if it is ready for punching, press the dough lightly with a fingertip. If the impression closes up immediately, the dough is not ready. If the impression that is made in the dough recedes slightly, the dough is ready to be punched or folded. The dough should then be punched.

To punch the dough, you should use both hands and punch the dough through the center, going from end to end of the dough trough. Then, use both hands to grasp one side of the dough and pull it on top, once again working from end to end of the dough trough. To punch dough in a mixing bowl, punch the center, fold sides into the center, then turn completely over. After the dough has rested for approximately 30 minutes, the dough should be taken from the bowl or trough to the bench for makeup.

Dough Makeup

The dough is divided into uniform pieces of the desired weight. When you are dividing the dough by hand, cut off the dough with the dough scraper and weigh the dough on a scale. Use the scraper to add or remove dough until the desired weight is obtained. This process is referred to as scaling. In a machine-operated bakeshop, the baker scales the pieces by machine, making adjustments so that the pieces will be the desired weight.

Rounding the Dough

After scaling, the dough is rounded by tucking the raw edges and forming a smooth round ball of dough. This process seals the raw edges that are left after the dough is divided.

Intermediate Proofing

The intermediate proofing period is a stage when the rounded piece of dough is allowed to rest between the time the dough is divided and rounded and the time it is formed for panning. The intermediate proofing period should be just long enough for a piece of dough to recover from being divided and rounded. The dough should be loose enough so that it can be easily molded. This requires from 12 to 15 minutes, depending on the dough and the conditions of the room.

Some of the advantages of rounding and giving the dough intermediate proof are it achieves uniform shape, facilitates panning, makes texture uniform, stretches gluten slowly, expels excess gas, and forms skin on surface of dough.

Molding and Panning

The pieces of dough are shaped so that they can rise in the pan and form a shaped loaf of bread. Use the following steps in hand molding:

1. Place each piece of dough on the board, top side down. Use as little dusting flour as possible.
2. Press the gas out of the dough and pull lengthwise carefully, shaping the dough into an oblong loaf about the length of a finished loaf of bread.
3. Flatten the dough with your hands or with a rolling pin.
4. Shape the dough by folding in the ends to form a rectangle.
5. Fold it lengthwise to the center and seal by firm finger pressure.
6. Fold over the other half of the dough and press for additional seal.
7. Roll the dough to complete the sealing and molding of the loaf.

After the dough is molded into a loaf, place it in a lightly greased pan. Each loaf should be placed so that the molding seam is on the bottom, and the loaf should be long enough to reach the ends of the pan. Figure 9-1 provides an example of the molding and shaping of dough into a loaf.

Pan Greasing

The primary purpose of lightly greasing the bread pan is to prevent the bread from sticking when it is removed. Too much grease on the pan surface can seriously affect the proofing, baking, and slicing of the bread.

Pan Proofing

After shaping and panning, loaves should be placed in a properly controlled room or cabinet called the proof box or proof cabinet for the final or pan proof. Temperature of the cabinet should be maintained at 90° to 100°F. During pan proofing, the action of the yeast is speeded up by the higher temperature and the gluten becomes more mellow and elastic.

To determine whether the loaf is properly proofed, touch the loaf lightly with one fingertip and press in slightly. If the impression made by the tip of the finger remains, the loaf is proofed. If the imprint does not remain and fills out when the fingertip is removed, the loaf is still too

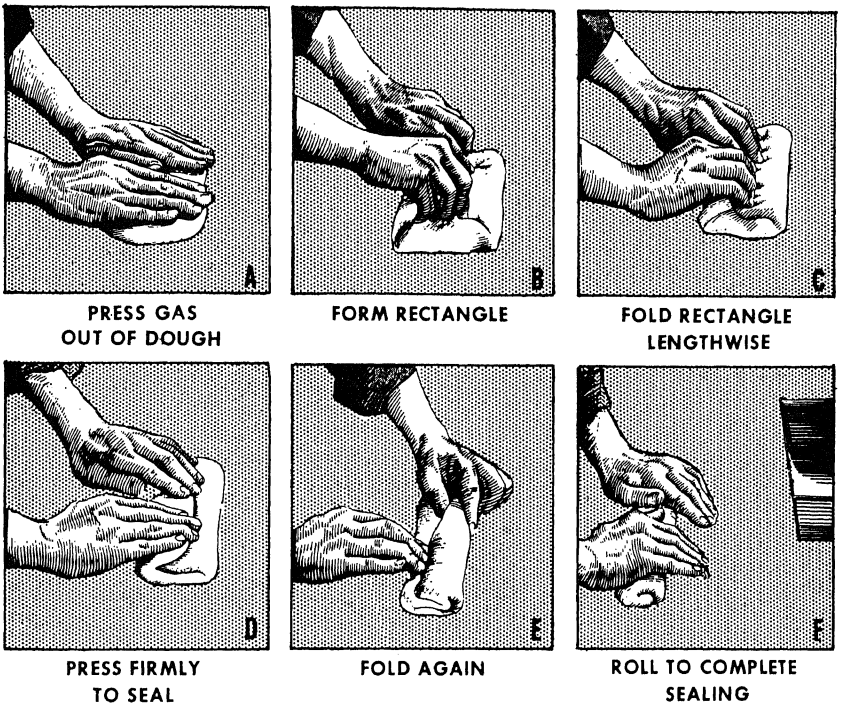


Figure 9-1.—Molding and shaping bread dough.

compact and should be proofed more. Usually, 50 to 75 minutes is sufficient.

Baking

The final stage in bread production is to place the pans of dough in an oven that is heated to a temperature sufficient to heat the dough quickly (temperature specified on AFRS recipes), and to cause the carbon dioxide of the dough to expand, thereby greatly increasing the size of the dough. The oven temperature also vaporizes moisture on the surface of the bread and ultimately causes caramelization of the sugars, starches, and other ingredients that make up the exposed dough surface. The oven temperature and the time required to bake a loaf of bread will vary, depending on several factors. When using convection ovens, follow the operating manual instructions or use the AFRS guideline card for convection ovens. Baking time is shorter and temperature is lower in a convection oven than in a conventional oven. Remember that some bread recipes will contain convection oven information as a note.

Bread is the end product of a long line of chemical and physical reactions. If the loaf is removed from the oven before these changes occur, no matter what crust color is obtained, the loaf will lack desirable qualities. Color and thickness of crust depend on the length of time the loaf is subjected to oven temperature and on the concentration of sugars. Aroma of underbaked bread is "green," lacking the full-scale,

delicious fragrance characteristic of freshly baked bread. If sufficiently underbaked, the loaf sides will collapse and proper slicing is not possible.

The oven temperature may be controlled for the purpose of influencing bread character in other ways than just the color. A low oven temperature tends to open the grain of the loaf. If too high a temperature is used, the loaf may burst in a rather violent manner, usually along the sides, which results in misshapen loaves.

A properly baked loaf of bread sounds hollow when tapped. Remove the baked loaves of bread from pans and cool on racks in areas free from drafts. Bread will dry out more quickly if the air is either too warm or too dry.

Storing and Serving

Bread should be stored at cool room temperature under conditions where it will not dry out. If wrapped in plastic bags that are closed with twisters, bread can be stored for up to 96 hours in a cool room. If the room is hot and humid, it may be necessary to store the bread under refrigeration to prevent mold from forming. Refrigeration is not ideal, however, for extended storage because bread stales more rapidly under refrigeration than it does at room temperature. This staling makes the bread firm and the crumb becomes coarse and hard. Bread may be held for extended periods if frozen in plastic wrap or bags. If freezer storage is impractical, bread quality is best maintained by baking in quantities that will be consumed within 48 hours.

The bread storage should be arranged so that the older bread always can be used first. Sliced bread left over from a previous meal can be thoroughly dried and held for bread crumbs, bread pudding, or crouton preparation.

Variety Breads

In addition to plain white bread, you will also become familiar with variety breads. The AFRS has directions for preparing these variety breads. The types and characteristics of these breads are explained next.

Rye Bread

Rye bread is made with a combination of medium rye flour and bread flour. The crust on rye bread makes it characteristically shiny and AFRS produces a shiny crust and enhances the color.

MIXING THE RYE DOUGH.—Mix the dough until it is smooth and elastic like a white dough, free from lumps and streaks. The temperature of the dough when mixed should be 74° to 76°F. The fermentation time will be approximately 1 1/2 hours.

FERMENTATION.—Rye doughs ferment faster and require less fermentation than white doughs.

MIXING SPEED AND TIME.—Mixing speed and time will depend on the amount of rye flour in the dough. Dough recipes (such as the AFRS rye bread recipe) containing over 30 percent of medium rye flour are better mixed at low speed. A rye dough should be mixed until smooth. Avoid overmixing.

PROOFING.—The proofing of rye bread should be watched very closely. The loaves are ready to load into the oven when an indentation made lightly with a finger remains in the dough.

Whole Wheat Bread

The AFRS recipe for whole wheat bread uses wheat base instead of whole wheat flour. Wheat base, a stabilized product, resists rancidity and insect infestation and, therefore, is more suitable for military use.

Raisin Bread

Raisin bread requires a strong flour to carry the raisins and liberal quantities of yeast for proper fermentation and oven spring. The dough should be mixed the same as a regular white dough, except that the raisins should be added during the last 2 minutes of mixing. After the raisins are added, mix for 1 minute at low speed and 1 minute at medium speed. Dough temperature should be 78° to 82°F. If the dough is mixed too much after the raisins are added, the raisins will be mashed and fermentation will be slowed down.

Raisins should be washed and drained before putting them into the dough. Fermentation time

French Bread

Mix the same as for regular white bread. Dough temperature should be 78° to 82°F. Dough fermentation time is 2 1/4 hours or until double in bulk.

MAKEUP.—French bread (or hearth bread) is made up in many shapes and lengths. The most popular shape is the long loaves or sticks. Usually, the French sticks are about 18 inches long.

PROOFING.—The modern way of proofing this type of bread is on pans that have been evenly dusted with cornmeal. The loaves are properly spaced, seams down, on the pans. The loaves should be far enough apart so that they do not touch while baking.

MARKING.—Cutting or marking each loaf before loading it into the oven produces the desired finished appearance and variations. Before baking, the loaves are brushed with egg wash or cornstarch wash and six cuts about one-fourth inch deep are made across the top of each loaf. Besides improving the appearance, the cutting of hearth bread results in uniformity and helps prevent bursting as loaf volume increases during baking.

BAKING.—The pans should be evenly placed in the oven and sufficiently spaced to allow the heat to circulate freely, thus preventing bursting and ensuring an even bake for each individual loaf.

Pizza

Almost any lean dough formula, such as that for French bread, can be used for making pizza. The major difference between a particular formula for pizza and lean bread doughs is that the yeast is not fed. That is, sugar is not an ingredient in a pizza formula because it is not needed to supply the yeast energy. Volume is not a factor in pizza doughs. Fermentation for pizza is relatively short in comparison with other bread doughs and makeup consists only of flattening the dough to the required dimensions.

Frozen Pizza Crust

Partially baked pizza crusts are prepared commercially and frozen. Add galley-prepared pizza sauce and bake according to package directions.

Short-Time Bread Formula

This formula was developed to meet a critical need aboard Navy ships with limited bakery space. The short-time formula eliminates both the intermediate proof and the final loaf-molding operation. This modified sponge-type dough produces a good loaf of bread.

More importantly, ships without production equipment can produce bread within 2 to 2 1/2 hours. In addition to eliminating the 8- to 10-minute intermediate proof, the baker can roll the rounded pieces into a sausage shape and pan—one person being able to roll and pan an average of 20 per minute. Hot rolls and variations may be prepared using the short-time formula. Follow the AFRS for best results.

A room temperature of 80°F should be maintained to ensure the desired finished product. Any increase in the bakeshop temperature will, of course, reduce the fermentation time. Because of the absence of fermentation rooms aboard ship, this control is strictly dependent on the baker's skill and knowledge in determining the readiness of the dough. Mixing time will not change, however, as the 10-minute periods appear to be optimum for proper dough development under practically all conditions.

Wheat-type Bread Using Short-Time Formula

This bread can be made using a short-time formula, except the baker will use less bread flour and add wheat base. Proceed as directed for white bread.

Undesirable Conditions

Certain undesirable conditions may develop in the baking and storing of bread that will not only spoil individual loaves and batches but will infest the bakery and continue to destroy subsequent bakings. Sanitary precautions against these conditions are particularly necessary in hot, humid climates.

ROPE.—Rope is an undesirable condition of bread caused by bacteria. The crumb of the loaf deteriorates, darkens, and becomes sticky and wet. If the loaf is pulled apart, long, wet strands will appear as it separates. Rope has an odor similar to overripe cantaloupe.

The rope spores that are formed from the active rope bacteria cells are highly resistant to

heat, and any that may be near the center of the loaf will not necessarily be killed by baking.

Temperatures of 86 °F and above, particularly temperatures of 95° to 105 °F, promote the development of rope. When the climatic condition is such that the shop temperature is high, rope could develop even in doughs that are lower in temperature than 85 °F. In the tropics, high humidity often accompanies high temperature. This increases the danger of rope developing in the bread. Also, doughs that are not sufficiently acid are highly subject to rope infection. Since acidity is normally increased through fermentation, an overly warm dough may not have time to become sufficiently acid to retard the development of rope.

When the weather or climate is hot and humid, you should keep a sharp lookout for the appearance of rope and do everything in your power to prevent its development. By controlling the temperature of the doughs, you can keep them cold enough to retard the development of rope. A mold-preventive inhibitor can be added to the bread dough.

To prevent the development of rope, you should take the following steps:

- Baking ingredients should not be kept in the shop longer than necessary, and those that are kept should be arranged in such a way as to allow free circulation of air around them.

- The bread-baking schedule should be planned so that the bakery is not overstocked; this would result in some of the bread becoming old in the shop or in the storage room.

- Bread that has accumulated and has become stale may be used for croutons and crumbs.

- All bread should be thoroughly cooled before it is stored.

- Keep equipment scrupulously clean and see that no pieces of previous doughs are allowed to remain in the shop. The shop and all equipment should be thoroughly cleaned as soon after it is used as possible.

In the event that rope does develop in your shop, it will be necessary to kill all the rope bacteria before you do any more baking. Generally, you should take the following steps:

- Dispose of all baked products and baking ingredients in the shop.

- Thoroughly clean the shop and all the equipment.

- Wash the bulkheads, decks, and overhead with hot soapy water and rinse them thoroughly.

- Remove all foreign matter from all equipment and tools and from the cracks and seams in the oven.

- Sterilize the workbench and all small equipment.

- Rinse down everything a second time with a strong vinegar and water solution.

MOLD.—Mold is composed of tiny plants that are visible to the naked eye. There are many types of mold which vary in form and color. They form velvety, colored spots on the bread and create a musty odor. Mold spores are present in the air and will become visible on most any food substance if they are given sufficient time under proper conditions to develop. Mold will multiply in a warm, humid atmosphere or on moist food. The absence of light and sufficient time also contributes to their growth. Mold first appears on the side of the loaf.

Mold is not resistant to heat; therefore, mold that may be present in baking ingredients will probably be killed during baking. This means that any mold on the baked bread is a result of improper handling of the bread after it is baked.

To prevent the formation of mold in the bakeshop, take the following steps:

- Keep the shop clean and dry.

- Ensure proper circulation of air in the shop.

- Make sure all areas are lighted.

- Bake bread thoroughly and cool properly before storing it.

- Always avoid handling the bread with wet or damp hands.

- Make sure bread is not kept for any length of time, since bread molds very quickly in storage.

Rolls

Several types of hot rolls can be made from the basic recipe in the AFRS.

The method of making rolls is the same as that used for making bread. However, less mixing is required and the dough is much softer. Careful handling of the dough will ensure light, tender rolls.

To make up the rolls, take the following steps:

- Divide the dough into 3- or 4-pound pieces.
- Roll each piece of dough into a strip 1 1/ inches in diameter.
- Cut each strip into pieces weighin approximately 2 ounces each (fig. 9-2, vie A).
- Round each piece into a ball by rolling with a circular motion on the workbenc (fig. 9-2, view B).
- When you have performed these basi steps you are ready to shape the dough int sandwich rolls, parkerhouse rolls, weine rolls, or dinner rolls (fig. 9-2).

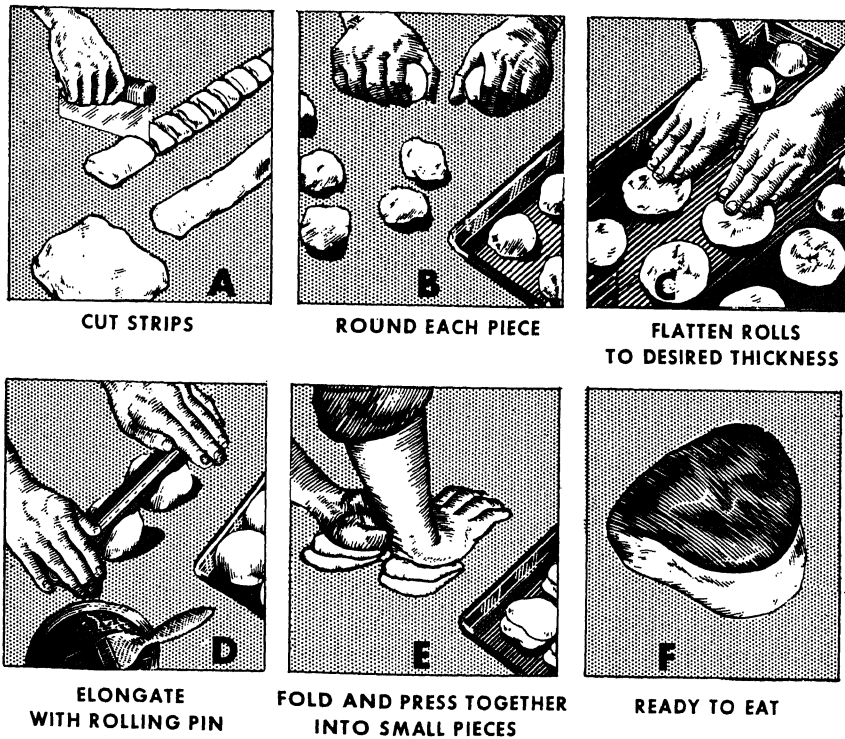


Figure 9-2.—Making rolls.

Timesaving roll mixes have premeasured and combined ingredients except water and yeast. Follow package and can instructions in mixing, fermentation, panning the dough, and baking.

Roll Production Precautions

The following precautions are associated with roll production:

1. Like bread production, temperature control is important. The AFRS temperatures should be used. Too high a temperature will cause dough to ferment too rapidly and rolls will be sour or yeasty tasting. Too low a temperature causes heavy, tough rolls.
2. The amount of fermentation time needed depends on the amount of yeast and sugar used.
3. The first major step in preparing hot rolls is the dough makeup. The variety of shapes possible with soft and hard rolls is almost endless. Accurate scaling and skilled handling in forming shapes are required. Follow AFRS guidelines for hot roll makeup.
4. Since rolls are smaller than bread, proofing time is very critical. Therefore, overproofed rolls will be blistered on the surface and will fall when placed in oven. The texture will be coarse.

Short-Time Roll Formula

Two variations of hot rolls—whole wheat rolls and brown-and-serve rolls—can be made using the short-time formula. About 1 1/2 hours' preparation time per batch of hot rolls is saved if the short-time formula is used instead of the straight dough method.

BROWN-AND-SERVE ROLLS.—For makeup, follow the procedure described for plain rolls for cutting and shaping. About 30 minutes (three-fourths proof) is needed for proofing. Bake at 300 °F for 12 to 15 minutes or until lightly browned. Partially baked rolls may be refrigerated at 40 °F up to 2 days. If freezer space is available, these rolls freeze satisfactorily up to 5 days. Finish baking at 425 °F for about 12 minutes.

HARD ROLLS.—Hard rolls should have a crisp crust. Hard rolls must be thoroughly fermented or well aged because young dough produces tough, rubbery crusts. Bread flour is necessary for properly fermented or aged dough.

SWEET ROLLS

A wide variety of sweet rolls can also be made from the simple basic sweet dough recipe. Sweet dough is prepared from a bread formula high in sugar, shortening, eggs, and other enriching ingredients. There are two types of sweet dough—regular sweet dough and Danish pastry. Products prepared from either of these doughs may be similar in size, shape, and weight but will differ considerably in texture. The fine, even grain and texture of regular sweet dough items are quite different from the flaky texture of the Danish pastry products. The dough should be smoother than bread dough, but it should not stick to your hands.

Among the types of sweet rolls that can be made from this basic recipe are cinnamon buns, butterfly rolls, doubleleaf rolls, pecan rolls, twists, chaintwists, braids, bear claws, crullers, snails, crescents, raisin buns, hot cross buns, plain coffee cake, small coffee cakes, and Swedish tea rings (fig. 9-3). Specific instructions for making each of these types of sweet rolls from the basic dough recipe are given in the AFRS.

Much of the attractiveness of sweet rolls is due to the glazes and fillings used. You will find the recipes for these glazes and fillings in the AFRS—Frostings and Fillings, section D.

Sweet Dough Mix

Some general messes purchase commercial sweet dough mix that is available through the supply system.

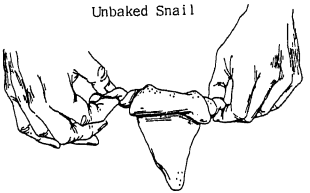
Sweet dough mix has premeasured and combined ingredients, except for water and yeast. Follow package or can instructions in mixing, fermentation, panning, and baking the dough.

Yeast-Raised Doughnuts

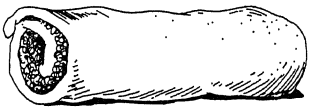
The doughnut formula is basically a sweet dough; however, leavening and eggs are decreased and a combination of bread and general-purpose flour is used. A blend of general-purpose and bread flours produces a more tender texture and a shorter fermentation time than if all bread flour is used.

Doughnut formulas contain different percentages of sugar, shortening, and eggs; the

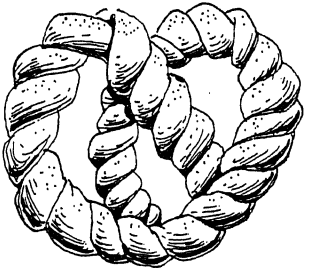
Unbaked Snail



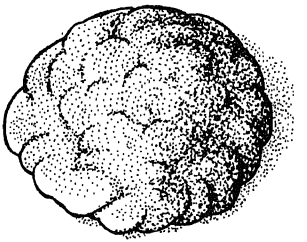
Unbaked Pointed Crescent



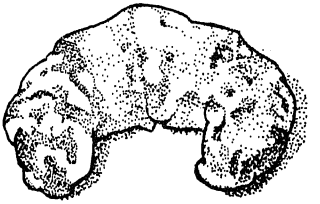
Unbaked Coffee Cake



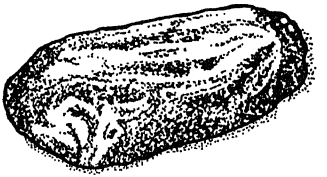
Unbaked Bowknot



Baked Snail



Baked Pointed Crescent



Baked Coffee Cake

Baked Bowknot

Figure 9-3.—Sample of sweet dough variations.

greater amount used, the richer the dough. However, variations in richness for yeast-raised doughnuts do not extend over as wide a possible range as with cake doughnut formulas, which tolerate larger quantities of sugar and eggs.

The sugar content in yeast-raised doughnuts controls, to some extent, the amount of browning and fat absorption during frying.

The quality of ingredients is just as important in doughnut production as it is in other yeast-raised items. Extreme care in mixing, fermentation, and makeup is essential to high-quality doughnut production.

MIXING.—Mixing temperature should be controlled so that the dough leaves the mixer at 78° to 82°F. The temperature of ingredients when mixed has a definite effect on the amount of fat absorbed during frying. Mixing time should be limited to 10 minutes or until the dough is smooth and elastic.

FERMENTATION AND MAKEUP.—Mixed doughs should be immediately divided into uniform pieces, the size of which depends on the weight of the entire batch being made up. Follow recipe instructions for rolling and cutting, as thickness of dough and uniformity of doughnut size are extremely important to proper frying. If there are cracks in the dough, or if it is stretched unnecessarily, the dough will tend to absorb a greater amount of fat during frying.

CUTTING.—Doughnut cutters should be used carefully to prevent overlapping the cuts and wasting the dough. Reworked and rerolled dough can be used, but will not give cut doughnuts a smooth surface or an even brown color.

Doughnuts may be cut into various shapes. Other than the characteristic round shape without centers, there are long johns, crullers, and beignets.

Yeast-raised doughnuts are not dispensed from a machine into frying fat or mechanically cut because they require a short proofing period.

FRYING.—Recommended temperature of the fat is 375°F for raised doughnuts. Make certain the correct temperature is used because doughnuts will soak up fat that is too cool and will brown before they are done if fat is too hot. To allow for expansion of dough and turning room, place cut doughnuts carefully in fry baskets one-half inch apart and lower into hot fat.

Normal fat absorption should be 2 to 3 ounces per dozen. This absorption is both desirable and necessary to create high-quality products. Grease soaking is undesirable, however, and is caused principally by undermixing of dough, misshapen cuts and rough surfaces, and poor-quality fat used in the frying process. A fat-soaked doughnut is heavy, greasy tasting, and stales very rapidly.

Doughnuts removed from the fat should be thoroughly drained on racks or absorbent paper and cooled to 160°F if glazed. If topped with coatings, doughnuts should be cooled to 72°F (room temperature).

QUICK BREADS

Quick breads are bakery products in which quick-acting leavening agents such as baking powder and baking soda are used. Examples of quick breads are pancakes, muffins, and biscuits. These products require less time to mix and bake than yeast-raised products.

Soft Batters

Soft batters contain varying amounts of liquid and may be prepared in either pour batters or drop batters. Pour batters are thin enough to pour directly from a container into cooking pans.

An example of a pour batter is pancake batter. Drop batters are thick enough to require spooning into baking pans. An example of a drop batter is muffins.

Roll-Out Doughs

Roll-out doughs are soft dough such as baking powder biscuits, or stiff dough such as cake doughnuts.

Dough or Batter Ingredients

Batters or doughs are made with dry mixtures of flour, baking powder, salt, liquids, and other ingredients such as fats, eggs, sugar, and flavoring.

FLOUR.—General-purpose flour is used for quick breads and batters. General-purpose flour produces finer grained baked products than bread flours.

LIQUIDS.—Nonfat dry milk is used in recipes for quick breads. The dry milk is sifted together with the other ingredients and the liquid is added later in mixing.

LEAVENING.—Baking powder is the chemical leavening agent used in AFRS quick breads. It is a double-acting baking powder in which one stage of leavening occurs in the batter and another occurs while the product is baking.

The amount of baking powder used depends on the type of bakery product, the ingredients, and their proportions. Baking powder must be measured accurately. Too much baking powder produces a coarse grain and may cause the product to fall after being taken out of the oven. If excessive baking powder is used, the color will be dark and yellowish and the taste will be salty or bitter. Too little baking powder will result in the structure being heavy and dense with low volume.

FAT.—General-purpose shortening compound is used in quick bread and batter production. Shortenings produce products with a soft crumb and aid in browning.

EGGS.—An important ingredient in quick breads and batter is eggs, which add flavor, color, and palatability. They also provide some leavening action. Fresh whole eggs or frozen whole baking-type eggs are used. Dehydrated egg mix may be used as a successful substitute in any recipe if the eggs are sifted with the dry ingredients. This will ensure even distribution and uniform reconstitution when the liquid is added.

OTHER INGREDIENTS.—Other ingredients include spices; grated, whole, or chopped fruits, nuts, poppy or caraway seeds; cereals such as bran or cornmeal; and salt. Salt adds flavor.

Mixing Methods

How ingredients are mixed determines to a large extent the structure and texture of the finished product. All ingredients must be evenly mixed. If needed, the flour gluten must be developed to the desired degree to keep the loss of the leavening gas to a minimum during baking.

These general rules apply to mixing quick breads and batters, regardless of which mixing method is chosen:

- The degree of mixing is always limited when the leavening is produced by baking powder.

- The amount of mixing varies with the kind of ingredients and their proportion, except for leavening. For example, a product containing a high percentage of fat and sugar may be mixed longer with less harm to the quality of the finished product.

- Recipes in the AFRS outline should be followed, step by step, as the method for mixing quick bread batters.

MUFFIN-MIXING METHOD.—This method is used for pancakes, muffins, corn bread, dumplings, and fritters. The sequence of steps for the muffin method includes sifting dry ingredients together, blending in the liquid and eggs, adding melted shortening, and mixing only until dry ingredients are moistened. Corn bread, muffin, and dumpling batters should appear lumpy.

BISCUIT OR PASTRY METHOD.—This means of combining ingredients is used principally for biscuits. This dough contains more flour than liquid and is of a kneaded consistency.

The dough is prepared by sifting dry ingredients together, blending in the shortening, adding the liquid, and mixing only enough to yield a uniform structure. The dough is then cut into the desired shapes and baked.

CAKE METHOD.—Several quick breads and batters are mixed by the cake method. Cake doughnuts, coffee cakes, and muffins are mixed similarly to battercakes. Steps used in this method are as follows:

1. Cream shortening and sugar.
2. Add eggs.
3. Gradually add the dry ingredients to the moist, alternating so that you begin and end with the dry ingredients.

Quick Bread Preparation

Both drop and pour soft batters and roll-out dough preparation methods are important to know. These batters and roll-out doughs are explained individually in the following sections.

Coffee Cakes

Coffee cakes are popular breakfast or brunch items. The recipe formulas are the same as for regular cakes eaten as desserts, except for minor ingredient changes. The major difference is in the frosting used on cakes.

Coffee cakes are either topped with sweetened crumbs or combined with fruit. Crumb cake and quick coffee cake recipes in the AFRS are of this type. Serve these cakes while still warm. Quick coffee cakes may be prepared with biscuit mix. Check the AFRS for variations.

Corn Bread

Corn bread is a quick bread popular in both northern and southern parts of the United States. Yankee-style corn bread is prepared with sugar; southern style is prepared without sugar. Jalapeno corn bread may be prepared by adding chopped jalapeno peppers.

Corn bread can be baked in either sheet pans (18 by 26 inches) or the batter may be poured into muffin pans to make muffins. Corn bread mix is available. See the AFRS recipe card for directions.

Hush Puppies

Hush puppies are small balls of corn bread batter (about 2 tablespoons) that are deep-fat fried. Finely chopped onions and black or white pepper are added to the corn bread batter. The sugar is eliminated. Corn bread mix, a complete mix except for water, is available for preparing corn bread, muffins, and hush puppies. Check the AFRS for directions.

Dumplings

There are two basic types of dumplings included in the AFRS. The first type is the meat dumpling that accompanies meat stew or poultry and is made from a dough that contains eggs and has no fat. This dumpling is light in texture and bland in flavor to accompany any meat or poultry entree without overpowering it. This type is cooked by steam or in boiling stock. These dumplings are dropped by scoop or 1/4-cup measure on top of simmering stew. The kettle should be covered during the entire cooking period to ensure fast and even doneness.

A finished dumpling should not be gummy. Dumpling quality should be the same when cooked in stock in kettles, stock pots, insert pans, or steamers. The outside of the dumpling is characteristically moist, and the inside is light and fluffy. Dumplings absorb the flavor of the accompanying meat dish.

The other type of dumpling is a filled baked dessert and is explained later in this chapter.

Fritters

A fritter is a food, such as fruit, meat, poultry, or vegetables, that has been dipped in a milk-egg-flour batter and fried in deep fat. The food may be uncooked, cooked, or a leftover. Fritters are made by combining a vegetable, such as corn, into the basic batter. The AFRS contains recipes for apple fritters and corn fritters.

The muffin method is used for mixing fritters; that is, dry ingredients are sifted together, liquid ingredients are combined and added with melted shortening. The amount of mixing is not as critical in the production of fritter or batter mixtures as it is with other quick breads because of the high ratio of liquid to flour and the solubility of the other ingredients. There is less tendency to overdevelop the flour gluten because the ingredients mix easily. Fritters are usually very tender products because they are cooked in deep fat.

Fritters should be thoroughly drained after drying. Place the fritters on absorbent paper for a short period. Fry in small batches because fritters lose crispness if allowed to stand on a steam table.

Commercial breading and batter fry mix is a product made of ingredients similar to those used in fritter batter. Fry mix may be used for deep-fat frying, pan frying, or for grilling. Pancake mix batter may also be used for making fritters.

Tempura Batter

Tempura batter is prepared from flour, baking powder, salt, ice-cold water, and beaten eggs. The batter is unsweetened and lighter than fritter batter. It is used for dipping raw shrimp, onion rings, or a variety of other vegetables before frying. Check the AFRS for directions.

Pancakes

The muffin method is used in mixing pancakes. Mixing should be kept to a minimum to prevent the overdevelopment of the flour gluten, which causes a tough texture.

Cooking should begin as soon as the ingredients have been mixed. A hot, lightly greased griddle is essential in producing high-quality pancakes. The griddle should be maintained at 375°F. Too high or low a temperature causes uneven browning and heavy textured pancakes.

Muffins

Ingredients for muffins cover a wide range of products including fruits, nuts, bacon, and cereals, in addition to the plain muffin ingredients.

Muffins are mixed using the muffin method. The mixing time is more limited for muffins than for other products mixed by this method because of the high ratio of flour to liquid. After the addition of eggs, shortening, and water, muffin mixture should be stirred until dry ingredients are slightly moistened. It is essential that dry flour lumps be dampened. After mixing, the batter should appear quite lumpy. If overmixed, tunnels and peaks form, the product texture is tough, and the volume is low. Drained blueberries, chopped nuts, dates, or raisins are folded into the batter just before panning.

The panning procedure is an extremely important aspect in muffin preparation. The muffin pans should be well greased. Gas that causes the muffin to rise can escape rapidly if the mixed batter is allowed to stand. Scale each muffin carefully, filling each muffin cup two-thirds full. Too much batter in muffin pans causes muffins to be coarse. A well-prepared muffin has a uniform texture, even grain, and a well-rounded but uniform top crust. A muffin mix is available. Prepare it according to instructions on the container.

Baking Powder Biscuits

Baking powder biscuits are prepared from flour, liquid, shortening, salt, and a leavening agent. When mixing, the shortening should be cut in thoroughly until the mixture resembles cornmeal.

The proportion of liquid to dry ingredients is extremely important in the production of biscuit dough. The dough should be soft, not dry or stiff, and slightly sticky. Gradually add water until dough is formed. The condition of the flour, moisture in the bakeshop, and the speed of mixing can alter the amount of liquid used. When to stop adding liquid will be recognized as experience is gained in the production of biscuits.

Cutting and Panning

Biscuit cutters used are 2 1/2 inches in diameter. Dip cutters in flour and tap lightly to remove the excess flour before cutting out the biscuits. Cut the biscuits so that rounds do not overlap.

Biscuit dough also may be patted on baking sheets and cut with a sharp knife in squares to speed up production and to save rerolling of dough. If little space is left between each biscuit on the pan, less crust is formed. If more crust is wanted, place biscuits farther apart. Baking powder biscuits should be baked at the temperature listed in the AFRS. They are best when served piping hot.

Biscuit Mix

Biscuit mix contains all the ingredients except water. The leavening agent is packaged separately from the other ingredients. It should be thoroughly blended with the mix before blending in the required water. Follow directions for baking listed on the container.

Biscuit variations may be prepared by rolling the dough in a rectangular shape, spreading the dough with butter, and adding brown sugar and nuts or a granulated sugar-cinnamon-raisin filling. The biscuit dough is rolled up like a jelly roll and the biscuits are then sliced. Cheddar or American cheese that has been grated may be added to the dry ingredients to make cheese biscuits.

Cake Doughnuts

The quality of the cake doughnuts depends on the recipe balance, the type of ingredients, and the techniques of mixing, rolling, and cutting the dough. A flour high in gluten content, such as bread flour, will make a tough product. For this reason, doughnuts are made from general-purpose flour. The amount of moisture absorbed also depends on the flour used. If the dough is too stiff, the doughnut will have a poor expansion; a tight, dry texture; and deep cracks. Insufficient mixing produces a coarse, hard texture, while overmixing yields a compact, tough product.

Cake doughnuts may be dispensed from a doughnut cutting and frying machine.

Cake Doughnut Mix

Cake doughnut mix requires only the addition of water. The leavening agent is packed separately and is blended with the mix before adding the water. Follow directions on the mix package for mixing, panning, and frying.

Cake doughnuts may be made into many varieties by adding cocoa to the dry ingredients to make chocolate doughnuts, topping cooled doughnuts with a butterscotch or vanilla glaze,

or dipping the doughnut in a cinnamon-sugar mixture. The shape may be varied by rolling the dough into strips and twisting them to produce crullers.

FILLINGS AND FINISHES

Fillings made from fruits such as cherries, pineapple, and prunes, almond paste, cream fillings, or sugar and spice mixtures may be used to fill coffee cakes, sweet dough, and Danish pastry. Most everyone prefers a coating or finish of one type or another on sweet rolls, coffee cakes, doughnuts, and other pastries. An endless combination of ingredients can be used for this purpose. The following are the most commonly used combinations:

- Dry coatings, such as cinnamon-sugar filling, powdered sugar, or granulated sugar
- Glazes such as vanilla or butterscotch for doughnuts, syrup or syrup-fruit glazes for sweet rolls and coffee cakes
- Washes for breads, rolls, and coffee cakes
- Toppings

Dry Coatings

The dry coatings are used most often on cake doughnuts. Using dry sugar coatings is somewhat more complicated than merely shaking together a properly cooled fried cake doughnut and sugar in a paper bag.

Sugar coating will shed off rapidly from an overcooked, dry doughnut. On the other hand, a sugared doughnut appearing moist on the surface may be an undercooked doughnut. If the sugar melts or disappears, the doughnut is too moist. This condition is known in the baking industry as sweating. Follow the AFRS for preparing cake doughnuts. Cake doughnuts must be cooled before being sugared.

Glazes

A vanilla glaze is usually applied to yeast-raised doughnuts, but cake doughnuts also may be glazed. Other glazes incorporating imitation maple, rum, brandy, cherry, almond, and black walnut flavoring may be used.

Doughnut glazing is somewhat more complicated than the sugaring process because the glaze is much less stable, particularly at warm temperatures. Glazes should be sufficiently thin to flow and to allow the excess to roll off.

Yeast doughnuts must not be less than 160 °F when glaze is applied. Taken from 375 °F deep fat, a doughnut will cool to the proper temperature in about 1 to 2 minutes. Doughnuts should be submerged into the glaze and drained on a wire screen until the glaze is set. Air circulation around the entire doughnut is important in setting the glaze.

Syrup glazes are usually applied to rolls or coffee cakes. A syrup glaze is prepared from a mixture of blended syrup and water, which is boiled for 5 minutes. For variation, a fruit juice or pureed fruit, sugar, and syrup mixture can be prepared. Brush syrup glazes over hot baked coffee cakes and sweet rolls.

Washes

Washes are applied to sweet doughs before baking and are used in addition to glazes or toppings in many products. They are used also on pastry, some quick breads, yeast bread (rolls and buns), and bar cookies.

Washes serve two functions: (a) to wash off excess flour and facilitate browning and (b) to provide a surface to help added toppings (nuts, fruits such as raisins, poppy or sesame seeds, or onions) stick to the products. Any one of the following ingredients may be used individually or in combination: butter, cornstarch, egg, and egg whites.

Toppings

Toppings such as glazed nut, orange coconut, raisin, streusel, pecan, or praline toppings are added to sweet rolls or coffee cakes before baking.

DESSERTS

Desserts are popular in the general mess. A dessert may be as simple as a fruit gelatin or as elaborate as a decorated cake. The AFRS has a wide variety of recipes for all types of desserts. The AFRS also has step-to-step procedures for the preparation and service of desserts, but the end result is often determined by the dedication and experience of the MS that prepares the dessert. Cakes are one of the desserts used in the general mess.

CAKES

Cakes are popular desserts in the general mess. A wide variety of colors from a few basic recipes are possible through the use of varied shapes, frostings, or fillings. Cakes are easily made in large quantities and they are less perishable than many other types of desserts. Service in the general mess is greatly facilitated by the use of cakes for dessert because they can be made up ahead of time.

Cakes can be divided into three separate groups according to the ingredients and the proportions of the ingredients used in each. The three groups are battercakes, foam cakes, and chiffon cakes.

Battercakes

Battercakes contain shortening. They include the pound cakes (loaf type) containing high percentage of fat, the plain cakes (basic type of layer) containing smaller percentages of fat, and the chocolate cakes (cakes incorporating cocoa and soda) such as devil's food and mild chocolate cakes.

Foam Cakes

Two kinds of foam cakes served in the general mess are angel food and sponge cakes. Angel food cakes are foam cakes that are leavened by air beaten into the egg white. Cream of tartar is added to the egg whites to make them firmer when they are beaten.

Sponge cakes are foam cakes containing baking powder and whole eggs. The eggs are combined with the sugar and heated until the mixture is lukewarm (110°F), and then the mixture is beaten.

Functions of Cake Ingredients

Each ingredient in a basic recipe has a specific function.

Flour furnishes structure and is used to hold the other materials together in making a cake. It should be a general-purpose flour.

Sugars, used chiefly as sweeteners, have a tenderizing effect resulting from their ability to soften flour protein and starches. By lowering the caramelization point of the batter, sugars allow the cake crust to color at a lower temperature. Sugars also help to retain moisture in the baked cake, thereby keeping the cake moist and edible for several days.

Shortening carries the air that is incorporated in the finished cake batter. This air has a tenderizing action on the cake by virtue of its leavening action.

Eggs furnish structure, moisture, flavor, and color. Egg whites for whipping must be free from grease or traces of egg yoke—as little as one-tenth of 1 percent will adversely affect the whipping quality.

Milk, water, fruit juice, or coffee can be used as the liquid in cake. Liquid is needed to combine and actuate all other ingredients. It controls the consistency of the finished cake batter.

Salt brings out the flavor of the other ingredients.

Leavening is accomplished in three ways: incorporation of air during mixing, chemical leavening, and vaporization of liquids in the dough by the heat of the oven. The manner of leavening depends upon the type of cake being made.

Cake Mixes

Cake mixes are convenient to use as they require shorter preparation time, less storage space, no refrigeration, and less training and experience to prepare successfully than cakes made from recipes using the basic ingredients. Cake mixes are available in a variety of flavors and preparation instructions are printed on the containers. Cake mixes are complete mixes that require only the addition of water. They contain a leavening agent, bicarbonate of soda (baking soda), packed separately inside the container. The soda packet must be mixed thoroughly with the dry ingredients before adding water. Cheesecake mix is combined with milk before mixing. No baking is required. Recipes for variation to cake mixes are given in the AFRS.

Cake Making

In addition to the proper selection of ingredients, accurate measuring, and proper mixing, other factors influence the finished product.

CAKE PANS.—Cake pans must be handled carefully so they do not warp or bend. You must not use pans that are bent out of shape because cakes will be uneven in shape and color. Cake pans may be greased or greased and dusted with flour, or they may be lined with wax or kraft paper. Some recipes call for a pan coating made

from shortening and flour mixed together. Pans for angel food cake should not be greased because the fat will keep the cake from rising. Each AFRS cake recipe specifies which method is used.

PAN CLEANING.—If grease is allowed to build up in pans, especially in corners, it can become rancid and give a very objectionable taste. Care should be taken to clean baking pans thoroughly each time they are used.

SCALING.—Scaling too much batter or using the wrong size pan can cause the cake to fail. Follow the instructions given on the specific recipe card. The AFRS cake recipes are designed to yield the correct amount of batter for standard 18- by 26-inch sheet cake pans. Use only lightweight sheet pans. If heavier sheet pans are used, they will cause overdone products. Other pan sizes may be used such as 9-inch layer pans or 16-inch square sheet pans. A listing of pans and sizes is found on the AFRS guideline cards.

OVEN TEMPERATURES.—Set the oven at the temperature specified in the recipe or in the cake mix directions and allow enough time for it to reach the correct temperature so that the cake can be placed in the oven at the specified baking temperature as soon as they are mixed. The oven thermostat should be checked from time to time to make sure it is working properly.

Allow space in the oven between the pans so that heat can circulate. Cake pans should be placed so that they do not touch each other or the sides of the oven.

If the oven is too hot, the cake will have a peaked, cracked surface and will be too brown. It will also be dry and shrink excessively. If cakes are baked too rapidly, the outer edges will be done while the center will be uncooked and the cakes will fall when they are removed from the oven. If the temperature is too low, the cake will not rise well. The AFRS guideline cards give the cause of cake defects and failures.

BAKING.—During baking, the proteins in the flour and eggs coagulate and the starch in the flour swells and absorbs moisture, causing the cake to become firm. Baking takes place in four stages. In the first stage, the batter is fluid and rises rapidly as the leavening develops. In the second stage, the batter continues to rise and the cake becomes higher in the center than at the edges. Bubbles rise to the top, the surface begins to brown, and the batter begins to become firm on the edges. In the third stage, the cake has completed rising and it becomes firmer and browner. In the fourth stage, browning is completed and the structure is set. When baking in a conventional oven, do not open the oven door until baking time is almost ended or the cake may fall.

USING CONVECTION OVENS.—Baking times are shorter and cooking temperatures lower in convection ovens than in conventional ovens. The AFRS guideline cards list specific times and temperatures. Overloading convection ovens will cause cakes to bake unevenly. When operating a convection oven, you must turn off the fan when loading and unloading. To load cakes into convections ovens, you should start with the bottom rack and center the pans, taking care not to touch the heating elements. Leave 1 to 2 inches between pans so air can circulate. After you load the cakes, allow them to bake for 7 to 10 minutes before turning on the blower. Or, if the fan has two speeds, use the lower speed.

Check the cake in about one-half the cooking time specified in the convection oven owner's manual. If the cakes are baking too quickly (cooked around the edges, but not done in the middle), reduce the heat 15° to 25 °F and use this lower temperature for each successive load. The oven vent should be open when baking cakes. If the vent is closed, the moisture in the oven will keep the cakes from rising. A fully loaded convection oven will bake cakes more slowly than a partially loaded oven.

TESTING FOR DONENESS.—To determine if the cake is done, touch the center of the cake lightly. If an impression remains, return the cake to the oven for 3 to 5 minutes more and then retest. A toothpick or wire cake tester may be inserted into the cake. If no batter clings when it is removed, the cake is done. Battercakes will shrink slightly from the sides of the pans when done.

COOLING.—If space is limited, cakes may be cooled, frosted, and served in the baking pan. If the cake is to be removed from the pan for icing, decorating, and service, allow it to cool for about 15 minutes or as directed in the specific recipe. Remove jelly rolls from pans while they are hot. Paper liners should be removed while the cake is still hot. If allowed to cool, the paper will cause the cake to pull apart and tear. Generally, however, for most cake items use a spatula to

in of the same size and invert both pans. The ke should drop easily onto the clean pan. Cakes aked in loaf pans should be cooled completely an upright position before they are removed. ut around the sides, tilt the pan, and slide the ke out gently.

CAKE CUTTING.—To prevent breaking, kes should be completely cooled before icing nd cutting. Cakes baked in standard-size sheet ans are usually cut into 54 square pieces, 6 across nd 9 down.

For other cake shapes consult the AFRS uideline cards. To cut a cake use a knife with sharp, straight edge and a thin blade. Dip the nife in hot water before cutting and repeat as ecessary to keep crumbs and frosting from linging to the knife. Cut with a light, even notion. A loaf cake or fruitcake should be cut ith a slow sawing motion. Fruitcakes cut easier they are chilled first.

STORING CAKES.—Cover cakes with noistureproof paper and place them in a clean rea with a temperature range of 75° to 95°F vhere they will not absorb odors. Cakes should e served within 1 to 2 days for best quality.

Frostings

Frostings add to the appearance and flavor of akes and help to keep them moist. Some cakes, uch as pound cake and fruitcake, are generally erved without frosting, but most cakes require ome kind of frosting or glaze. Jelly rolls are filled vith jelly or cream filling, and powdered sugar s sprinkled on top.

Frosting Ingredients

Ingredients used to prepare frostings include liquids, sugar, fat, flavoring, and salt.

LIQUIDS.—Liquids make the frostings soft enough to spread. Milk, water, coffee, and various fruit juices are the liquids specified in frosting recipes.

SUGAR.—The kinds of sugar used to make frostings are granulated, brown, powdered (confectioner's), and blended syrup (corn and refiner's). Powdered sugar is preferable in uncooked frosting because it is fine grained and in cooked frostings. If too much syrup is used, it will keep cooked frostings from hardening.

FAT.—Butter is the fat ingredient usually specified in the AFRS frostings.

FLAVORING.—The AFRS frosting recipes specify vanilla flavoring, but other kinds of flavoring may be substituted where they would be appropriate for the flavor of the cake. Some of the flavorings available are imitation almond, banana, brandy, black walnut, brandy, cherry, lemon, maple, orange, peppermint, pineapple, and rum.

SALT.—Salt is an important ingredient in frostings because it brings out the other flavors.

Uncooked Frostings

Uncooked frostings are easy and quick to prepare. All ingredients should be blended at room temperature. Powdered sugar is the major ingredient in cream frostings; other basic ingredients are softened butter and liquid. The secret of a good uncooked frosting is thorough creaming until the product is light and fluffy. If frosting is too thick, add a little liquid. If too thin, add additional powdered sugar until the desired consistency is obtained. More flavoring may be required to prevent a flat sugar taste.

Decorator's frosting, a very hard uncooked frosting, is used to make decorative or special occasion cakes. It is suitable for making designs, flowers, latticework, or other forms. The decorations can be set on waxed paper to dry and then removed and placed on the cake. Because this type of frosting dries rapidly, unused portions should be covered. Royal frosting is better to use for decorating than other frostings that are softer and might run or weep.

Cooked Frostings

Temperature is very important in cooked frostings. Follow the directions given for cooked frostings in the AFRS. For best results, cakes with cooked frostings should be used on the same day they are prepared.

Cake Frosting Procedures

Cakes should be completely cooled, but not chilled before frosting. This prevents the cake

from breaking when frosting is spread over it. Remove loose crumbs. The consistency of the frosting should be such that it spreads easily, but is not so thin that it runs off. The cake should be frosted far enough ahead of time (an hour or more) to allow the frosting to set before it is served.

To frost a cake, space six equal portions of frosting evenly over the center of the cake. Using a spatula, spread the frosting to the same thickness across the top and to the edges of the cake. The AFRS has guidelines for preparing frosting and for frosting all types of cakes.

Toppings, Glazes, and Fillings

Toppings, glazes, and fillings, or a combination of these, can enhance the flavor, texture, and appearance of cakes. Some cakes are identified by the toppings or glazes. Pineapple, or other fruit, combined with brown sugar and melted butter and covered with yellow cake batter makes upside down cakes. Shortcakes are made by serving fruit and whipped topping with plain cake. Gingerbread is usually served with whipped topping or lemon sauce. Boston cream pie is a cake with a cream filling and covered with chocolate glaze. To make jelly rolls, sponge cake is spread with jelly, rolled, and cut in slices. Vanilla glaze topping may be spread over angel food cakes or drizzled over bundt-type cakes such as chocolate macaroon cake. Ice cream toppings and powdered sugar may be served with pound cakes for variation.

COOKIES

Cookies are a popular dessert. Unlike most other desserts they can be stored for a day or more and used as they are needed. The various types of cookies are defined by the special processes used in making them. These types and processes are described below. General directions for successful cookie making are summarized.

Types of Cookies

Cookies are often referred to as small sweet cakes and classified by the method of mixing: stiff dough, soft dough, and refrigerated dough. Recipes for the three classes of cookies are contained in the AFRS. The following types of dough are used in the production of cookies: soft dough is used for drop cookies; stiff dough is formed into a roll and baked on sheet pans; and refrigerated dough is formed into a roll, wrapped, and refrigerated until sliced and baked.

Cookies are formulated much like cake, except that there is less liquid (eggs and milk) and the baked cookies are characterized by soft, hard, brittle, or chewy textures.

Soft Dough

Soft-batter cookies have a high moisture content and, therefore, require a greater percentage of eggs to give them structure. The desired finished product is soft and moist and must be stored or packaged in a container with a tight-fitting cover. Cookies included in this category are dropped cookies of all sorts and brownies (butterscotch and chocolate).

Stiff Dough

Formulas of stiff dough contain less liquid and eggs and more flour than soft cookies. These cookies are often referred to as sliced or rolled cookies. The desirable finished product is crisp. When humidity becomes excessive, the cookies become moist and tend to soften up and lose their desirable crispness. Examples are peanut butter cookies and sugar cookies. Crisp cookies should be stored in a container with a loose-fitting cover.

Refrigerator Dough

Refrigerator cookies are mixed in the same manner as other cookies, except the dough is very stiff. The resulting cookie is very brittle. After the mixing is completed, the dough is weighed into pieces of convenient size. The dough is then formed into rolls, then they are sliced into the desired slices, wrapped in wax paper, and put into the refrigerator until time to bake them. The advantage of this type of cookie is that it can be made and stored in the refrigerator until it is needed, thus eliminating waste and providing a ready source of dessert at short notice. Butternut and chocolate refrigerator cookies are good examples.

Mixing Methods

Cookies are mixed in much the same manner as battercakes. The temperature of the ingredients should be around 70 °F. The dough is sometimes chilled later to facilitate shaping.

Cookie doughs should be mixed just enough to blend the ingredients thoroughly. Overmixing

develops the gluten in the dough, thereby retarding the spread. When the mix is overcreamed, the cookies will not spread as much because of the dissolving of the sugar crystals. Improper mixing of ingredients will produce cookies that are spotted.

The conventional or creaming method is the most commonly used method. The longer the shortening and sugar are creamed, the less spread the final product will have because the sugar will be more finely distributed throughout the mix. The longer the dough is mixed after blending the flour and water, the more developed the structure of the mix will become and less spread will result. Undercreaming will give the cookies a coarse structure and will result in a baked product that has too much spread. If lumps of sugar are left in the dough during mixing, sticking is likely to occur due to the syrup that is formed during baking. Then, the sugar becomes hard and solidifies on the pans.

Cookie Mix

For convenience in preparation, oatmeal cookie mix is authorized throughout the Navy. The mix is packaged in No. 10 cans. One can (5 pounds) of mix yields 100 cookies. Preparation is simple. The mix is combined with water and the dough may be dropped, rolled, or sliced. A variety of cookies can be prepared from the basic mix. Instructions for raisin, date, nut, chocolate chip, and applesauce variations are printed on the container.

PIES

A successful pie must have a tender crust. To make sure the piecrust is tender the proper ingredients must be used and the dough must be carefully mixed.

If properly made, the standard piecrust has outstanding characteristics. In appearance, it will be golden brown with a rough surface that appears blistered. The texture will be flaky or mealy depending upon the method used to combine the ingredients. It should be tender enough to cut easily, but not so tender that it breaks or crumbles. The flavor should be delicate and pleasing.

Piecrust Ingredients

Piecrusts are made from flour, shortening, water, and salt.

FLOUR.—General-purpose flour should be used to make piecrust as it produces pie dough that is easy to handle and pan. DO NOT USE bread flour. It will cause tough pastry.

SHORTENING.—General-purpose shortening compound should be used as it makes the crust flaky and tender. Rancid shortening or shortening that has absorbed other odors causes off-flavors in piecrust and should never be used. The shortening should be approximately 60 °F when ready for mixing and just soft enough to blend with the other ingredients. At 60 ° F, the shortening blends well into the flour while giving firmness so that a flaky piecrust is produced. Bakery emulsifier shortening, melted shortening, or salad oil should not be used as they will cause the dough to be oily and hard to handle and will not produce flaky piecrusts.

WATER.—The quantity of water and the method of mixing it with the other ingredients are the most important factors in making a tender piecrust. The water must be cold (40 ° to 50 °F.) The amount of water should be sufficient to make a dough that forms a ball that does not crumble, but also is not sticky when rolled out. Too much water will cause toughness.

SALT.—Salt aids in binding the ingredients together and enhances the flavors of the other ingredients.

Mixing

The flour and shortening should be mixed together until they form very small particles and are granular in appearance. When mixing by hand, the water should be added gradually until the dough reaches the right consistency—neither sticky nor crumbly. When you are machine mixing, the water is added all at once and mixed just until the dough is made.

Rolling the Dough

Divide the mixed dough into three sections (about 5 pounds 3 ounces each) and chill for at least 1 hour. The chilled dough will be easier to handle. When rolling the dough, handle it as little as possible. The pastry board or workbench and rolling pin must be dusted lightly with flour to prevent the dough from sticking. Using a dough divider, cut the dough sections into 7-ounce pieces for top crusts and 8-ounce pieces for bottom

crusts when making two-crust pies. For one-crust pies, 7 1/2-ounce pieces should be used.

Lightly dust each piece of dough with flour and flatten the pieces gently with the palm of the hand before rolling. Use quick strokes and roll from the center toward the edge to form a circle about 1 inch larger than the pan and about 1/8 inch thick. If the dough is stretched or forced, it will shrink back during baking. Pie dough pieces may be placed into a pie rolling machine, if available. The pie dough will be rolled out automatically into a circular shape and ready for panning. Do not grease pie pans. The dough has enough shortening to keep the crust from sticking.

Fold the circle of dough in half and place it in the pan, then unfold it to fit smoothly in the pan. Make sure to fit the dough carefully into the pan so that it is flat and air pockets cannot form between the pan and dough.

Types of Pies

The types of pies prepared in the general mess are one-crust (unbaked), one-crust (baked), and two-crust pies.

ONE-CRUST PIE (UNBAKED).—After you roll out the dough and place it in the pan, make an edging by forming a high-standing rim on the pie shell and fluting (fig. 9-4). Fill the pie with filling and bake according to the recipes.

ONE-CRUST PIE (BAKED).—After placing the dough in the pan and fluting the edges, the dough must be pricked with a fork or docked. This enables air or steam that is formed underneath the crust during baking to escape without causing the crust to puff up or crack. Examples are coconut cream and chocolate cream pies.

TWO-CRUST PIES.—The bottom crust is filled with pie filling. The piecrust rim is brushed with water. Before placing the top crust on the filling, several small slits should be made in the top crust to allow steam to escape. The top crust should be folded in half for ease in handling, then placed on the pie filling. Unfold it carefully to prevent the crust from tearing. The edges of the piecrust are pressed lightly together. The excess dough is then trimmed. The pie may be fluted in the same manner as one-crust pies. If a finish or glaze is desired, the pie top may be sprinkled lightly with sugar or brushed with pie wash. Select the pie wash that is applicable to the type of pie being prepared.

PIECRUST VARIATIONS.—The AFRS has recipes for other piecrusts using graham crackers. Graham cracker crusts may be prepared from either crushed graham crackers, granulated sugar, and melted butter or prepared ready-to-use graham cracker crust.

Pie Fillings

Pie fillings may contain either fruit or cream. Some pie fillings are already prepared.

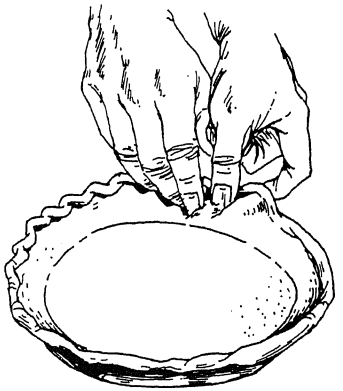
PREPARED PIE FILLINGS.—Prepared pie fillings are convenient to use as they require no preparation. The required amount of filling is poured into an unbaked pie shell. Apple, blueberry, cherry, and peach are the varieties available. For further information, see the AFRS cards for prepared pie fillings.

FRUIT.—Fruit fillings, except those using pregelatinized starch or canned prepared pie fillings, are cooked before being placed in an unbaked piecrust. If recipe instructions are carefully followed, the filling will be properly thickened and cut edges of the pie will ooze slightly. The pieces of fruit will look clear and distinct and the color will be bright. The AFRS gives information on ingredients used to thicken pies.

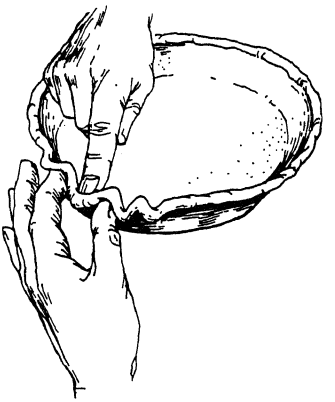
CREAM FILLINGS.—The AFRS has basic recipes for chocolate and vanilla cream pie fillings. Cream fillings should be smooth, free from lumps, and rich in appearance. The fillings should never be boiled. Boiling will cause curdling. If fruit is to be added, follow the recipe directions carefully to avoid a thin, runny filling. Follow the AFRS procedure to prevent this from occurring. Once the pie filling has been prepared, pour it into a baked piecrust and top with the desired topping.

Instant pudding mixes are available for making cream filling. They require no cooking. Available in chocolate, butterscotch, and vanilla flavors, they are designed to be prepared with nonfat dry milk and water. Chocolate mousse pie is prepared from instant pudding to which whipping topping is folded in to make a rich pie filling.

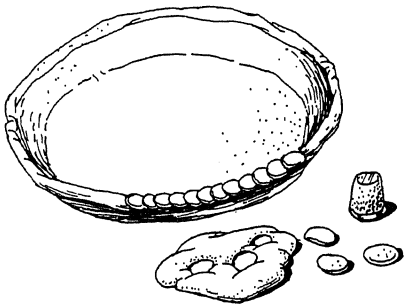
PUMPKIN.—Pumpkin pie filling is a custard-type filling to which pumpkin and spices are added. The filling is added to the unbaked crusts and baked. Note that the pumpkin mixture for the filling must set 1 hour before adding the eggs.



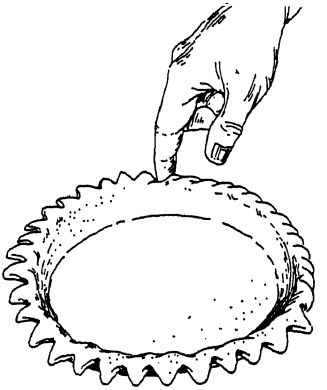
Fluted: Form a high-standing rim. Place right index finger inside rim; make flutes every 1/2-inch by pushing pastry into V with left thumb and index finger outside rim. Pinch flutes for clean edges.



Scalloped: Form a standing rim. Place left thumb and index finger 3/4-inch apart on outside of rim. With right index finger, pull pastry to center to form scallop. (For one-crust pies only.)

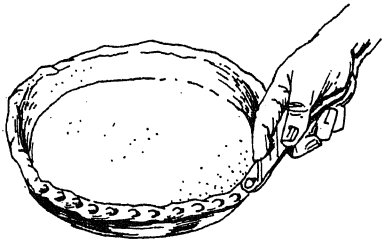


Coin: Trim pastry even with edge of pan. Cut 3/4-inch circles from rolled pastry-use center of doughnut cutter or thimble. Overlap circles on slightly moistened rim; press down lightly. (For one-crust pies only.)

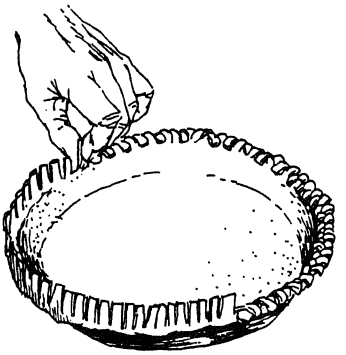


Cornucopia: Allow 1-inch additional overhang; do not turn under or make rim. With scissors, cut overhang into triangles at 1-inch intervals. Roll points in toward rim. Seal "cornucopias" on inner edge. (For one-crust pies only.)

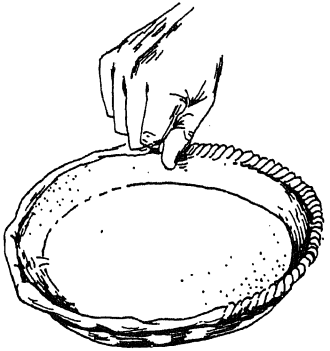
Figure 9-4.—Making crust for one-crust pies.



Polka Dot: Allow 1/2-inch overhang; fold under and form a rim. Press rounded end of bottle opener firmly into pastry rim. Repeat around outside rim.



Leaf: Form a high standing rim. With scissors, clip rim at an angle every 1/4-inch. Press down clipped rim alternatively to right and left.



Rope: Form a standing rim. Place thumb on pastry rim at an angle; press pastry against thumb with knuckle of index finger.

Fork Scalloped: Form standing rim. Mark edges every 3/4-inch as for fluted edge. Flatten rim to edge pan between points with floured fork.

Figure 9-4.—Making crust for one-crust pies—Continued

If not, the full amount of absorption will not take place and the filling will shrink and crack during baking.

Cream or custard fillings are highly susceptible to the formation of bacteria that cause food-borne illness. Never hold custard or cream fillings between 40° and 140°F longer than 3 cumulative hours. Always keep cream pies refrigerated until they are served.

LEMON.—The AFRS lemon pie filling recipe specifies water rather than milk as the liquid. Lemon juice is the flavoring and must be added after the filling is cooked. If the lemon juice is added while the filling is cooking, it will prevent the mixture from thickening. Prepared, canned lemon pie filling is also available. The filling is ready to use and requires no cooking unless it is to be topped with a meringue. In that case, the pie filling must be heated to 122°F before pouring it into the baked piecrust. Dehydrated lemon pie filling mix is available. When mixed with water, it is ready for filling piecrusts. Follow manufacturer's preparation instructions.

CHIFFON.—Lemon, pineapple, and strawberry chiffon pie fillings are made easily by combining whipped topping with flavored dessert powder gelatin that has been beaten slightly after it has thickened. Well-drained fruits such as strawberries or pineapple are added. The filling is poured into a baked pie shell. Another variation of chiffon pie can be prepared by using fruit-flavored gelatin cubes of different colors mixed with whipped topping.

OTHER FILLINGS.—Pecan, mincemeat, and sweet potato pie fillings may be prepared for pie filling variations. These fillings are poured into unbaked pie shells and baked according to AFRS recipe directions.

Pastry

There are several types of pastries that are included in the AFRS. These are cobblers, turnovers, dumplings, and fried pies. Ready-to-use puff pastry dough, in sheets, is available. It is used with fruit fillings as a dessert. It can also be used with meat fillings and served as an entree.

COBBLERS.—Cobblers are pies that are baked in sheet pans instead of pie pans. Cobblers may be varied by topping the filling with pie dough cut into small dollar-sized circles or other shapes, or by using a streusel topping. Cobbler-style pies take less preparation time than the regular type of pies. Directions for preparing cobblers are provided in the AFRS.

TURNOVERS, DUMPLINGS, AND FRIED PIES.—Piecrust and fruit fillings are used according to the directions in the AFRS to make turnovers, fried pies, and dumplings. For turnovers and fried pies, the dough is rolled into a rectangle and cut into squares, then folded over and sealed. Turnovers are folded into triangles and baked. Fried pies are usually cut into semicircles and then deep-fat fried. Dessert dumplings are formed by the four points of the rectangle being pulled up to the center and then sealed. They are served warm with a dessert sauce (such as caramel).

Pie Toppings

Meringues, whipped cream, and whipped toppings are most often used as toppings to attractively garnish cream pies.

Meringues

Meringues are generally used for topping cream or lemon pies. Meringues are made with egg whites, sugar, vanilla, flavoring, and salt. They must always be baked.

Meringue Powder

Dehydrated meringue powder is made from egg albumen, powdered sugar, constarch, flavoring, salt, phosphates, sulfates, dextrose, and stabilizers. It requires only the addition of sugar and water. Once rehydrated, it should be spread over the filling and baked in the same method used for fresh meringue.

Other Toppings

Toppings for pies may be a slice of processed American cheese or a scoop of ice cream to top apple pies. The AFRS has a large selection of frostings, fillings, and toppings.

Cutting and Serving

Pies should be cut into eight serving-size portions. Pies may be placed on individual plates for self-service from the dessert bar. Pies should be placed for service so that the point of the pie

slice faces the front of the serving line. Turnovers, dumplings, fried pies, and cobblers should be served in a similar manner as pies.

OTHER DESSERTS

Besides cakes and pies, there are various other types of desserts used in the general mess.

Fruit Desserts

Fruit-flavored gelatins, fruit crisps and crunches, baked apples, fruit cups, and fresh, canned, frozen, or dried fruit provide additional dessert variety.

FRUIT GELATIN.—Gelatin desserts are light, simple to prepare, colorful, and economical to serve. They may be plain, fruit-flavored gelatin served with a whipped topping or a gelatin and fruit mixture. Available flavors are cherry, lemon, lime, orange, raspberry, and strawberry. Follow the commercial directions on the container for the gelatin being used.

When adding fruit to gelatin, the juice drained from the fruit can be used for part of the water specified in the recipe. Using only the fruit juice will make the gelatin too sweet and may cause the gelatin to be too soft. The fruit should be well drained. Slice, dice, halve, or quarter the fruit before adding it to the slightly thickened gelatin. Fresh pineapple must be cooked before it is added to gelatin desserts as it contains an enzyme that will prevent gelatin from setting. Canned pineapple is a cooked product and, therefore, may be used without cooking.

Keep gelatin desserts refrigerated until served. Holding them on the serving line for long periods of time may cause them to melt. Gelatin desserts that are prepared in decorative molds can be unmolded easily by dipping the container in lukewarm water for a few seconds to loosen the gelatin from the bottom and sides. Individual portions can be cut with a sharp knife and a spatula used to lift out the portions for service.

Gelatin desserts may be garnished with whipped toppings.

FRUIT CRISPS AND CRUNCHES.—Fruit crisps and crunches are baked fruit desserts prepared from canned or dehydrated fruits (for example, apples, peaches, pineapple, and red tart cherries). Crunches may be also made by using canned, prepared fruit pie fillings. Crisps and crunches are topped with mixtures such as buttered crumbs, oatmeal, oatmeal cookie mix, or cake mix. Cinnamon and nutmeg are added to cooked apple dessert crisps for flavor.

BAKED APPLES.—Baked apples are prepared from fresh whole, unpeeled, cooking-type apples that have been cored. A cinnamon-flavored sugar and butter syrup is poured over the top before baking. The apples may be filled with a raisin nut or raisin coconut filling if desired. Serve the baked apples warm. Whipped cream, whipped topping, or a scoop of ice cream may be added just before serving.

FRUIT CUPS.—Fresh, frozen, and canned fruits can be combined to make eye-appealing desserts. Ambrosia is a fruit cup to which coconut has been added. Seasonally available melons, such as cantaloupe, watermelon, honeydew, and honeyball melons, give extra variety to fruit cups.

FRESH, CANNED, AND FROZEN FRUIT.—Seasonally available fresh fruits and the readily available fruits such as apples, oranges, grapefruit, and bananas can complete a meal when offered as dessert. They offer an alternative to weight-conscious dining patrons who want to avoid the high-calorie desserts. Canned and frozen fruits may be served as a simple dessert. Fresh pineapple may be cut into pieces and served as a dessert fruit. See the section on salads for preparation.

Cream Puddings

Cream puddings may be prepared from the basic recipes or from instant dessert powder pudding mixes. Ready-to-serve pudding in chocolate and vanilla flavors is also available. Those products may be spooned into serving dishes or used as pie fillings in baked piecrust shells or graham cracker or cookie crusts. For information on puddings, see the section on cream pie fillings. Sliced bananas, orange sections, crushed pineapple, or coconut may be added for variations.

Tapioca Pudding

Tapioca pudding is similar to cream pudding except tapioca is used as the thickening agent instead of cornstarch. Tapioca pudding should not be heated to a boiling temperature. High heat causes the pudding to be thin and runny. Follow the AFRS directions.

Garnishes, toppings, and sauces should be chosen to complement the flavor and color of the custard or pudding.

Custards and Puddings

Custards and puddings containing milk and eggs must not be held at temperatures between 40° to 140°F for more than 3 cumulative hours. These desserts are extremely susceptible to rapid bacteria growth that causes food poisoning. Keep them chilled until they are served.

BAKED CUSTARD.—Baked custard contains milk, sugar, eggs, flavoring, and salt. It is baked until the custard is firm. The custard is done if a knife slipped into the center is clean when removed. The custard should be refrigerated until it is served.

BREAD PUDDING.—Bread puddings are economical to serve since they allow leftover bread to be used. Because of the custard base, these puddings must be kept thoroughly chilled. Chocolate chips or coconut may be added instead of raisins.

RICE PUDDING.—The AFRS includes recipes for both baked and creamy rice puddings. Creamy rice pudding is prepared in a similar manner as cream pudding. The rice should be cooked before it is combined with the other custard ingredients. Coconut or crushed drained pineapple and chopped maraschino cherries may be substituted for the raisins. Since it is a custard, rice pudding must be continuously refrigerated.

CAKE PUDDINGS.—Some cake puddings separate while baking into a layer of cake over a layer of pudding (such as chocolate cake pudding). Other types of cake puddings differ in that the fruit is mixed with or placed over a cake batter before baking. Fruit cocktail pudding is an example.

Cream Puffs and Eclairs

Cream puffs are round pastries that expand while baking, becoming hollow in the center. Eclairs have the same ingredients but are oblong rather than round. Cream puffs and eclairs are made by first stirring general-purpose flour into a melted butter and boiling water mixture, then cooling the mixture slightly. The unbeaten eggs are added to the mixture a few at a time and the mixture is beaten until it is stiff and shiny. Cream puffs and eclairs should be baked immediately. During the last few minutes of baking, the oven door should be opened. This will prevent them from becoming soggy and falling when removed from the oven. Cream puffs and eclairs are filled with chilled pudding, whipped cream, or ice cream. Powdered sugar may be sprinkled on top or they may be served with chocolate sauce. Cream puffs and eclairs may also be filled with tuna, shrimp, or salmon salad mixtures, or chicken a la king.

Ice Creams

Ice cream and sherbert are popular desserts. The kinds that are used in the general mess are commercially prepared ice cream and sherbet and galley-prepared soft-serve ice cream and milk shakes.

Ice cream and sherbet are available commercially in various container sizes—bulk, slices, and individual cups. Ice-cream novelties that may be procured include ice-cream bars, cones, sandwiches, and fruit-flavored ices on a stick.

SOFT-SERVE ICE CREAM AND MILK SHAKES.—Galley-prepared ice-cream mixes greatly simplify making soft-serve ice cream and milk shakes. The kinds available are dehydrated ice milk-milk shake mix, fresh liquid ice milk mix, and fresh liquid milk shake mix.

DEHYDRATED ICE MILK-MILK SHAKE MIX.—Soft-serve ice cream and milk shakes, chocolate and vanilla flavors, may be made from dehydrated ice milk-milk shake mix. The mixes are combined with 40° to 60°F water using a wire whip. Once reconstituted, they are very perishable. Keep refrigerated until ready to use. The mixture should not contain any lumps because they will clog the freezer. After mixing, chill the mixture to 35° to 40°F and pour it into the freezer. DO NOT ADD A WARM MIXTURE TO THE FREEZER. Start the dasher motor and then the refrigeration. Freeze the ice cream to 18° to 22°F or until it is stiff when it is drawn off.

When preparing milk shakes, the method of preparation is the same; however, the milk shake is frozen to 27° to 30°F.

FRESH LIQUID ICE MILK MIX.—Soft-serve ice cream may be prepared from fresh liquid ice milk mix which is available from local dairy

contracts. The mix is available in chocolate, vanilla, and fruit flavors. Fresh liquid ice milk mix is ready to use. No water is required.

FRESH LIQUID MILK SHAKE MIX.—Milk shakes in chocolate and vanilla flavors may be prepared from fresh liquid milk shake mix. This mix is intended for use in milk shake mix machines, but may be prepared in a soft-serve ice-cream machine if the other is not available. A slightly slushier product will be made.

Both of the fresh, liquid mixes are perishable and should be kept chilled at all times.

For cleaning soft-serve and milk shake machines, check the manufacturer's instructions.

YOGURT.—Plain and fruit-flavored yogurt is available. A vanilla or fruit-flavored yogurt mix for use with the soft-serve ice-cream machine is also available. See AFRS card for preparation instructions.

Sauces

Some fruit sauces served with desserts (such as cake, puddings, and ice cream) are thickened with cornstarch or pregelatinized starch. Prepared pie fillings that are thinned with water can be used to make quick and easy fruit sauce toppings for ice cream.

Galley-prepared caramel sauce does not contain cornstarch or other thickeners. It is thickened by cooking the sauce until it reaches the soft ball stage (235 °F). Chocolate sauce is prepared by combining milk with a cooked paste made of sugar, cocoa, salt, and water and then cooked. Butter and flavoring are then added. These sauces may be served over ice cream or plain cake cut into serving portions.

Vanilla sauce is served with cakes, puddings, and pastry dumplings. Cornstarch or pregelatinized starch is used for thickening. When cornstarch is used, the sauces must be cooked to thicken and to eliminate the raw starch taste.

Cherry jubilee sauce, a sauce prepared from dark, sweet, pitted cherries, cornstarch, sugar imitation brandy flavoring, and water, may be prepared to serve warm over vanilla ice cream or for serving cold over vanilla pudding or plain, unfrosted yellow or white cakes.

A variety of flavorings such as imitation wild cherry, black walnut, brandy, rum, almond, orange, lemon, and banana are available for use in dessert toppings and sauces. They may be substituted for vanilla flavoring in vanilla sauce and used as specified in other recipes.

CHAPTER 10

FOODSERVICE

Excellence in foodservice is essential to the health, morale, and efficiency of all Navy personnel.

Good foodservice begins with you as the MS in the galley. The food must be properly prepared to look, taste, and smell good. It should be brought to the serving line in appropriate containers and be served in attractive portions by properly trained, neat, and clean foodservice personnel. The serving lines and all the serving operations must be arranged so that foods are served at the proper temperature.

One of the most important traits that you, the MS, must possess is a genuine feeling for people and a sincere service-oriented attitude. Good customer relations start with you. You must have a positive attitude toward your job and the customers you service. Attitudes have a major influence on people. A poor attitude will destroy all the hard work that has been put into the preparation and service of the meal. The key to good customer relations is to treat a customer the way you would like to be treated if you were a customer. The way you conduct yourself can make or break the meal regarding customer satisfaction.

Always remember that the MS rating is a people-oriented rating and customer service is of the utmost importance.

GENERAL MESS

General mess (GM) foodservice begins in the galley with the preparation of the food. It is equally important that food be properly served. The guidelines for attractive food presentation and serving techniques in the GM are geared to cafeteria and fast food operations. Wardroom styles of food presentation and serving techniques are discussed later in this chapter.

PREPARATION FOR SERVING

A well-arranged serving line operates smoothly and rapidly. Each customer should be able to select the food that is desired and should be able to get the food to the table while it is still at the proper eating temperature.

Some of the advance planning techniques used to accomplish these objectives are explained next.

Dinnerware

Dinnerware should be washed after each meal and made ready for the next meal. Before storing the clean utensils, the cabinet should be inspected for cleanliness. Trays and bowls must be located at the head of the serving line; silverware may be placed at the head of the line but it is recommended that it be placed at the end of the line. Cups and glasses should be located near the beverage dispensers. All items of dinnerware should be inspected to make sure they are spotlessly clean and not chipped, cracked, or bent. An inventory should be taken once a week to be sure there is a sufficient amount of dinnerware to last the entire serving period.

Posting the Menu

Service is speeded up when a person knows what foods are being served before reaching the serving line. It is a good practice to post the current menu, in full view, near the beginning of the serving line. It may be in the form of a typed menu. Another form is a menu board. This board is used to display those food items that are being served for the current meal. Actually, any display method is acceptable that gives the customers time to decide which foods they desire before they reach the serving line. It is strongly recommended that a suitable means of expressing calorie content for each item in the meal be publicized for the benefit of dieters and weight watchers.

Serving Line

The commanding officer establishes the hours for serving the meal. The time published must be

strictly adhered to; the day's work schedule in the galley must be organized to conform to the established hours for serving meals. The messdecks and serving personnel must be ready to begin serving on time. Advance planning will ensure prompt and efficient service.

Serving Line Preparation

The aim in presenting menu items on the serving line is to stimulate the appetite and promote the welfare of the patron. Foods that do not have an attractive and appealing appearance are often rejected without being tasted.

The serving area, which includes the salad bar, steam table, bread and pastry counter, drink/beverage dispensers, must be cleaned after each meal. This area must be checked again before each meal to make sure it is clean and sanitary.

The steam table requires advance preparation. Water has to be placed in the steam table and the steam table turned on so that the water will be at a temperature of 180° to 200°F when food is placed on the table. This temperature must be maintained at all times while food is on the serving line. Temperatures below this range will not keep food hot enough and higher temperatures will cause overcooking and ultimately ruin both the taste and the appearance of the food.

If possible arrange hot foods in the following order: soup, main entree, sauce or gravy, potatoes or potato substitute, and vegetables. All short-order types of items for breakfast such as pancakes, ham slices, and eggs should be served from the grill on a prepared-to-order basis.

Food should be placed on the steam table just before serving time. The quantities of food placed on the serving table should be small and should be replenished frequently during the serving period. It will be necessary to use progressive cooking techniques to meet these requirements.

Because heat and juices are lost so quickly from sliced meats, roasts are more palatable when carved on the serving line as the customers come through; consequently, most of the natural juices and the heat will be retained. Meat carving is covered later in this chapter.

Keeping cold foods, such as salads, properly chilled also requires advance planning and preparation. Salads contribute a great deal to the meal; they add variety, make meals more attractive, and help balance the meal. Because self-service salad bars are used increasingly in the GM, this method of serving salads is covered in another section in this chapter.

Containers

To make sure an appetizing appearance is maintained, use shallow steam table inserts for serving both vegetables such as mashed potatoes, broccoli, and cauliflower and meat items such as breaded veal cutlets or baked pork chops. If french-fried eggplant is stacked in a deep insert, the first few customers served will receive acceptable portions; everyone else will be served a soggy portion. If the eggplant is spread loosely in a shallow insert, you will know that all the customers served will receive an appetizing, palatable portion.

Garnishes

Though garnishing is just one step in presenting food attractively, it is a very important one. A garnish is described as an ornament or a decoration. Garnishes are planned to complement the flavor and the texture of the dish as well as add eye appeal. Any garnish used should be edible and should be such an integral part of the food that it will not be left on the plate.

If you were to plan a garnish for every food, it would be quite a job, but fortunately not all foods need this help. For example, a meal consisting of pot roast of beef, mashed potatoes, brown gravy, buttered peas, celery sticks and sweet pickles, hot rolls and butter, and blueberry pie needs to having nothing added in the way of a garnish to make it attractive. The natural colors, textures, and flavors combined in this meal provide enough variety to make the meal inviting to the eye and tempting to the taste.

Many of the Armed Forces Recipe Service (AFRS) recipes have a built-in garnish. Good examples of this are beef stew, tossed vegetable salads, browned casseroles, and desserts such as cakes iced with frostings that complement the color and flavor of the cake.

Always refer to the food-preparation worksheet for information regarding the garnishing of various foods on the menu.

Listed below are some practical guides to effective food garnishing:

- Use restraint in garnishing. Keep a picture of the whole meal in mind. Too many garnished dishes in one meal will spoil the effect. Select a suitable garnish, if one is needed, and use it sparingly.

- Vary food garnishes. Do not let garnishes become monotonous. Use a section of orange or a slice of peach on top of a pudding occasionally; not always a maraschino cherry.

- Plan garnishes ahead of time and show the serving personnel how garnished foods should be served.

- Plan simple garnishes. Do not sacrifice timely preparation for the sake of garnishing.

- Take advantage of the natural food color contrasts in combining foods. Do not rely on the addition of food coloring to the food to supply color contrast.

Desserts and Pastries

When possible, separate the dessert bar from the serving line and place it in the center of the messing area. Using this setup, the patrons can pick up desserts after eating the main course.

Desserts should be set in a tempting arrangement. Serve cleanly cut slices of pie and evenly sliced squares of cakes and cookie bars. Puddings and other similar desserts should be spooned neatly in bowls or dishes. Most desserts should be preportioned and replenished frequently to the serving line. If a special occasion cake is prepared, set the unsliced cake on the serving line so that the decorated cake can be seen before it is sliced. Slice and preportion the cake on plates as the customers approach the dessert bar. One or two whole baked pies can be set on the serving line along with sliced portions of the pie.

Highly perishable desserts such as cream puddings and pies, custards, fruit gelatin desserts, cream puffs, and eclairs must be served chilled. Place them on refrigerated units or on trays over ice. Keep ice cream frozen. Whipped toppings should be served cold. Serve toppings from a small container and replenish frequently.

Locate dessert dishes for ice cream next to the ice-cream freezer. If soft ice cream is served, place paper cones or sugar cones near the machine. Sundae toppings should be located near the ice cream. If pie a la mode is the featured dessert, add scoops of ice cream just as the dining patrons select the pie. Ice-cream pies should remain frozen. Place only a few slices of ice-cream pie on the serving line and replenish as required.

When preportioning desserts, you should provide a smaller portion along with the standard size for the weight-conscious patrons.

Beverages

Cold drinks and juices should not be dispensed by ladle from an insert; milk dispensers or other appropriate dispensers should be used. Do not serve juices from their original container unless the cans are the individual size. Juices may be dispensed from beverage coolers or pitchers. Preportioned juices speed service and aid in portion control and can be replenished as required.

Miscellaneous

Butter patties should be served from a dispenser. If a dispenser is not available, the ready-to-serve patties may be placed on a tray and set over a container of ice on the serving line. Unwrapped patties should be placed on paper chips and arranged on a tray set over ice.

Dry cereal should also be served from a dispenser. It should never be served directly from the packing carton. If a dispenser is not available, the individual packages should be arranged on a tray on the serving line.

Bread will remain fresher if served from dispensers. Otherwise, bread should be opened as needed, removed from the wrapper, and placed in a shallow container on the serving line. Galley-baked bread should be sliced and replenished when needed during the meal. Chilled bread should be heated before meal service. To give a fresh-baked quality to breakfast pastries, coffee cakes, sweet rolls, and so forth, heat them in an oven (250 °F) for 8 to 10 minutes before serving.

Foodservice Personnel

Foodservice personnel must be trained to provide good customer service. Common courtesy is the backbone of good customer service. This cannot be overemphasized because the way the serving line personnel conduct themselves often determines the patrons' satisfaction or dissatisfaction with the meal.

Every person assigned to the serving line must be clean and look neat. That requires the washing of hands many times during the day. Uniforms, hats, and aprons must be clean. Long-sleeved uniforms should be rolled up to avoid touching the food and equipment. Foodservice attendants not only should be clean and neat, they should be trained to serve food properly because serving techniques also affect sanitation and attractiveness. They must be given detailed instructions on

the proper serving of each menu item. To avoid possible contamination, utensils and dishes must be properly handled during serving. Servers' hands should not come in contact with eating surfaces of bowls, trays, silverware, and so forth.

All items of mess gear should be inspected for cleanliness and should be supplied in sufficient number to last the entire serving period. The serving counters and steam tables should be checked for cleanliness before foods are set in place. Condiment bottles, including tops, should be thoroughly cleaned. During meal service, keep serving lines and salad bars wiped down. Wipe up spills immediately. Sponges and other cleaning aids should be kept out of sight. If needed, they should be spotlessly clean. Dirty sponges detract from meal service. Return soiled empty serving inserts and containers to the galley.

SERVING THE FOOD

As a petty officer, you may be placed in charge of the serving line. When this is the case, you should instruct personnel as to the proper techniques for placing items on the serving line, for serving each item, and for placing the items on the plate or tray. Correct serving techniques are very important!

Soups, Chowders, and Similar Foods

Soups and chowders are placed on the steam table in deep well inserts. Use the 8-ounce ladle to serve as follows (key serving points follow each step):

1. Pick up the soup ladle.
   Hold the ladle about halfway down the handle, grasping it between the thumb and forefinger. This firm hold makes it easier to balance a full ladle.
2. Stir the soup or chowder.
   Stirring distributes the solid particles and the temperature evenly.
3. Dip from the bottom.
   Solids settle to the bottom, and the soup or chowder at the bottom of the insert is the hottest. Dip while solid particles are in motion.
4. Raise the ladle above the level of the soup bowl.
   The customer in line has extended the tray and soup bowl toward you. As you raise the ladle, the liquid it contains will settle so that it is easier to pour, and it will not spill over the sides.
5. Tip the ladle slightly and pour slowly. Direct the pouring into the center of the soup bowl.

Whenever you serve stew, chili con carne, or any similar item, you should use the same technique. Stir to distribute the solid particles and the liquid evenly and then dip from the bottom. This is the ONLY TIME you should stir these items. When there is a lull and you are waiting for the next person to come through the line, do not stand and idly stir the vegetables. The less they are stirred, the better they will maintain their appetizing appearance.

Solid Foods

As you serve items that are in shallow inserts, like macaroni and cheese, baked lasagna, or lyonnaise potatoes, serve the food from the back of the pan toward the front of the pan in an orderly system across the pan. A uniform way of serving helps maintain the fresh appearance of the food and promotes eye appeal.

Serving Utensils

Serving utensils and serving techniques go hand in hand. You can't serve properly without the right utensils. Using the appropriate serving tool for each dish has several advantages. It simplifies foodservice, exercises portion control, reduces food waste, and maintains a more appetizing appearance of foods in pans on the serving line.

Use a food turner for lifting steak, scrambled eggs, or other similar items. For mashed potatoes or items of similar consistency, use a serving spoon or a scoop. Use a basting spoon or other shallow spoon to dip sauce or gravy from a shallow pan, but use a ladle to serve food from a deep well. Some foods, such as peas and cabbage, should be served with a perforated spoon, so that the liquid drains back into the serving pan. Fried chicken, asparagus, broccoli, and corn on the cob should be handled with tongs.

Portions

The MS assigned to supervise the serving line has two responsibilities regarding portion control. One is to see that servings are equitable, and the other is to make sure the amount served is not more than the individual requests.

The portion size of some items can be regulated on the serving line through the use of standard ladles and spoons. When you serve meat, guesswork on correct portion sizes can be eliminated by using scales to check one or two slices before you cut the entire batch. Some meat items are precut in individual serving portions; for example, grill and Swiss steaks, pork slices (chops), and veal slices.

Replenishment

As the petty officer in charge of the serving line, you have the responsibility for keeping food on the serving line throughout the entire meal. You must make sure food is replenished in a timely manner and not allow the line to be held up.

Replenish by removing the inserts or containers and replacing them with fresh filled ones. Never dump food into inserts already on the serving line.

Empty inserts must be kept off the decks and serving lines. They must be sent to the deep sink for cleaning and sanitizing after each use. They should not be allowed to build up until the completion of the meal.

Carving

For special occasions such as holidays, hand carving hams and roasts on the serving line is preferred over machine slicing.

Carving plays an important role in serving meat in an appetizing manner. Carving affects the appearance and texture of the meat and the portion size can be controlled by carving. Therefore, it is essential that the MS develop skill in carving.

The direction of meat grain determines how the meat is to be sliced. Most meats should be cut across the grain. Cross-grain slicing shortens the muscle fibers and produces a more tender slice of meat.

Carving Roast Meats

Roast meats should be allowed to rest about 20 minutes after they have been removed from the oven before they are carved. This period allows the meat to "firm up." It also allows the meat to reabsorb some of the juices lost during the roasting process. The meat becomes firm and can be sliced with greater ease in equal slices. Slicing should be done on a hard rubber cutting board so that the cutting edge of the knife is protected. The carving board should be placed in a sheet pan to catch the drippings while the meat is being sliced. Remove any string or netting that may have been used to hold the meat together while it was cooking. With a sharp carving knife (long, thin-bladed knife) and a two-tined fork in hand, carve the roast as follows:

1. Cut one slice across the top of the roast so that the carver can determine the direction of the grain of the roast.
2. Hold the roast in place by pressing the fork firmly into the top of the roast.
3. Carve across the grain of the meat from right to left for a right-handed person and from left to right for a left-handed person. The carved portions can then be easily lifted to the plate or tray.

Sliced meat portions must be controlled by weight rather than by the number of slices. For this reason, the customer's preference for thick or thin meat slices can be satisfied by the carver.

SALAD BAR

Most salad bars are self-service and refrigerated. Salad bars range from the preportioned to the make your own type. A fully stocked, large variety salad bar is very popular with patrons of the general mess. Often, it offers an alternative food source for weight-conscious patrons.

Arrangement of Salad Items

Overcrowding items on the salad bar detracts from the overall appearance, hinders easy self-service, slows down the service, and generates confusion. Careful attention should be given to the arrangement of the salad items to eliminate the customer having to reach over one container of food to get to another. Particles of food are often dropped from one container to another, resulting in an unappetizing, unsatisfactory display of food.

Refrigeration of Salad Ingredients

For proper refrigeration of ingredients, place all salad bar items in pans or in trays on a bed of ice, or on a mechanically refrigerated salad bar unit. Proper drainage is essential if salad items are set in ice.

When the use of ice is not possible, and the salad bar is not refrigerated, the bar should be large enough to accommodate shallow pans or trays of salad items that are taken directly from the refrigerated space. Because of the high room temperature of most messing areas, easily contaminated food (salad mixtures containing meat, fish, poultry, eggs, cooked salad dressing, and mayonnaise) should be placed on the salad bar in small quantities and replenished as needed. Commercially prepared salad dressings in individual portions and opened bottled salad dressing should be refrigerated.

Serving Utensils for Salads

An adequate number of the proper kinds of serving utensils for the salad bar will promote good sanitary practices and keep the salad bar in order during self-service. The most useful utensils and the food with which they can be used are as follows:

TONGS—for relishes and green salads—such as carrot sticks, celery, pickles, olives, lettuce and other salad greens

PERFORATED SPOONS—for salads mixed with thin dressings—such as cole slaw, fruit salad, and cucumber and onion salad

BASTING SPOONS OR SCOOPS—for compact foods and salad mixtures—such as potato, ham, fish, cottage cheese, and macaroni salads

SMALL LADLES—for thick and thin salad dressings

Customer Service During the Meal

Customer service does not end with the serving line. Other important customer service considerations are clean tables and chairs with adequate supplies of napkins, salt and pepper shakers, and condiments. Patrons also like peace and quiet along with courteous foodservice attendants and MDMAAs.

Maintaining the Messing Area

Sanitary practices that should be observed in the preparation and in the serving of the food have been discussed. It is equally important to maintain during the meal and to clean it thoroughly after the meal.

The tabletops should always be kept scrupulously clean. They must be scrubbed and sanitized after each meal with hot soapy water and rinsed with clear water to which a germicide solution has been added. Germicide and fungicide solutions are standard stock items and may be ordered through supply channels. The sanitizing solution should be changed as frequently as necessary to ensure a clean solution.

After each meal the salt, pepper, and condiment containers should be thoroughly wiped with a mild detergent solution and then refilled. Once each week the salt and pepper shakers should be emptied, prewashed, and put through the dishwashing machine. These containers should be arranged in the same order on all tables. The method recommended is to place the taller containers in the center and arrange the others around them in graduated order of height.

Foodservice personnel assigned to the messing area must be instructed to check the messing area continuously during the serving period. Spilled food on the deck constitutes a safety hazard and should be cleaned up immediately.

Thus far, our discussions have centered primarily on the various aspects of preparing and serving the food in the general mess. While this is an important part of your job, it is only one part. You have other duties, including maintaining a clean, sanitary messing area and setting the tables for regular and formal meals, taking into consideration the appropriate seating arrangements for officers and their guests.

WARDROOM MESS

The types of private messes found on Navy ships were discussed in chapter 1. Although only the wardroom mess operations are discussed in this chapter, there are many similarities between these operations and those in the other private messes.

The wardroom mess provides food and lodging to the members and guests of the mess. A wardroom mess is normally organized into food preparation, wardroom, and stateroom services. Food preparation was discussed in chapters 7, 8, and 9. These same guidelines used in the GM apply to the wardroom. Stateroom service is

The wardroom is usually a multipurpose area. It is the officers' dining area and lounge. It is an area where officers gather for social functions, for entertainment, to conduct business, and to hold conferences.

Usually family style foodservice will be provided in the wardroom. However, specific wardroom design, the number of foodservice personnel assigned, and the desires of the mess president and commanding officer determine the type of service to be used. Regardless of the type used, the service must be carried out properly. The success of a meal often depends on how it is served. Good foodservice is not easy to give and requires knowledge, training, and planning. All of this must be accomplished before seating the wardroom members.

MEAL STYLES

There are two basic meal styles used in the wardroom, formal and informal, with variations of each style being used on particular occasions. These styles and their differences are discussed next.

Formal Styles

Formal meal service includes the semiformal and the formal styles referred to as French service.

The formal type of meal requires more advanced planning, detailed preparation, and elaborate tableware than any of the other styles. The formal meal style is used most often when special guests or dignitaries are present either in the flag or wardroom messes.

When you are using the formal meal style of serving, the food may be served from a food wagon, a side table, or offered to guests from a serving dish. As many as seven courses may be served in this manner. All courses are served with the plates being removed after each course. Also, the place setting has no bread and butter plate.

Semiformal Service

This type of service is used more often than formal. For example, it may be used daily in commanding and flag officers' messes if there are no guests. The preparation and service of this meal are not as elaborate as the formal style and require less time, facilities, and personnel. The individual place settings are similar to those used for the informal meal styles. Few center items are used other than salt and pepper shakers, sugar bowls, and creamers.

The method of serving meal items is what distinguishes semiformal from informal meal styles. In the semiformal style, each food item is arranged on a separate serving dish in the pantry and then offered to each diner. Beginning with the meat or main course, each course is carried into the wardroom separately. The courses are presented to each diner in turn, starting with the head of the table, the senior guests, or the individual designated by a buck (a small object sometimes used to indicate who is to be served first). Each diner selects desired items from the serving dishes and places them on his or her plate while the serving dish is held. Serving dishes are returned to the pantry after their contents have been offered to all the diners.

Informal Meal Styles

Several types of informal service are used in the wardroom mess. Those currently in use include family, American, a la carte, cafeteria, and buffet styles.

FAMILY STYLE.—For this type of service the food is attractively arranged in the pantry or galley in the proper serving dishes with serving utensils and placed on the table. Each officer serves himself or herself and passes the serving dishes around the table. Dessert items that are to be served later can be brought in from the wardroom and placed on the sideboard. The serving dishes are replenished as necessary.

AMERICAN STYLE.—This type of service is used in most restaurants. The main course plate is not part of the initial place setting. Instead, individual plates are prepared in the pantry or galley and placed before the seated diners. This form of meal service is often provided in officers' messes on medium-sized ships and is often combined with other traditional forms of service. In American service, food is placed on plates in the galley and taken to the wardroom and served to each diner.

A LA CARTE STYLE.—This type of service is usually provided at breakfast. As with the American style, the main plate is not part of the initial plate setting. Instead, the diner is given a menu or breakfast order form. After the diner has decided what food he or she wants and how it is to be prepared, the order is delivered to the pantry or galley and the food is prepared as requested. It is placed on a plate and served to the diner as the American style of service.

CAFETERIA STYLE.—This is the type of service that is used aboard some larger ships such as carriers and supply ships. The diner does not normally serve himself or herself—rather, the diner selects the desired items and the foodservice attendant places them on his or her plate. However, salads, desserts, and some side dishes may be apportioned in dishes and the diner simply takes them from the serving line. The main course—vegetables, starches, and meat—is portioned onto a plate by the serving line attendants as the diner selects them.

BUFFET STYLE.—Buffet service may be used for both formal and informal occasions. This type of service is generally used when either space or serving personnel are limited. The food is attractively arranged on a sideboard or serving table, and the officers and guests serve themselves. It is customary to place silverware and other necessary dishes on the dining table so that diners do not have to carry them. When seating at the dining table is not adequate, or for a stand-up buffet, silverware and napkins are placed on the buffet table. All foods may be arranged on the buffet, or some items may be taken from the buffet and served after the guests are seated.

Serving responsibilities for buffet service are fewer, but they are no less important. The buffet and dining table should be watched constantly so that items may be replenished before they run out and soiled dishes may be removed immediately after use. After the diners are seated, the buffet may require some straightening up so that it remains attractive for latecomers or anyone desiring seconds.

When everyone has finished the main course, the main course foods should be removed from the buffet table, and the dishes and used silverware should be removed from the table. If the dessert is to be served from the buffet table, the dessert and appropriate serving dishes should be arranged as soon as the main course foods are removed. Otherwise, the dessert should be served at the table.

MEAL PREPARATION

When assigned to wardroom duty, you are responsible for setting the table for meals. Setting a table correctly helps avoid confusion at meals and allows the table to look neat and attractive. An attractively set table contributes to the enjoyment of the meal.

Setting the Table (Formal and Informal)

Table setting begins with removing and storing the between-meal table cover. Next, place the silence pad on the table, arrange it to hang evenly below each edge of the table, and smooth it to obtain a tight fit over the table. Unfold the tablecloth and place it on the table so that the lengthwise crease runs down the center of the table. Then, smooth the cloth to see if it hangs evenly below all edges. The hemmed or "catch" edge must be up and out of sight. If more than one tablecloth is used, overlap them on the table so that they hang evenly on all sides.

Planning Individual Place Settings

The dishes, silver, glasses, and napkin placed in front of one person is called a cover. Information concerning the meal style and the expected number of diners should be obtained from the wardroom supervisor before planning the place settings.

There are two basic place settings, one for breakfast or brunch and one for lunch or dinner. The basic breakfast or brunch place setting is shown in figure 10-1 and includes a breakfast fork, a breakfast knife, a teaspoon, a coffee cup and saucer, and an order form, if available.

The basic lunch or dinner setting (fig. 10-2) includes a main course plate, a coffee cup and saucer, a main course fork, a main course knife, and a teaspoon.

Modifications to Basic Settings

Modifications to the basic plate settings for specific meal service and menu requirements are discussed next.

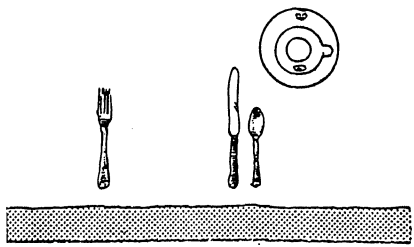


Figure 10-1.—Basic breakfast or brunch cover.

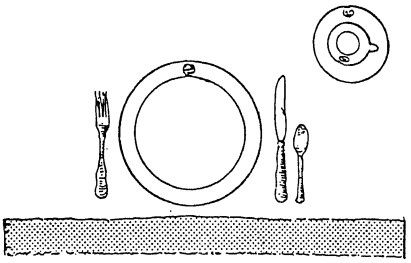


Figure 10-2.—Basic lunch or dinner cover.

BREAKFAST OR BRUNCH.—Breakfast or brunch is normally served in a la carte or buffet styles. For a la carte style, each diner's meal is served with whatever cover items necessary. For buffet style, the diner obtains his or her own items. If cereal is to be served, the dessert or cereal spoon is set to the outside of the teaspoon.

LUNCH OR DINNER.—The basic lunch or dinner setting applies to informal service. If soup or shrimp cocktail is being served, the breakfast plate is set as a serving plate. For cafeteria or buffet, a la carte, and American style meals, the main course plate is not set. Other changes in the basic settings are based on specific menu requirements. Check each item on the menu to determine if a specific item of individual tableware is required. As a general rule, only six pieces of silverware should be set for any one meal, but the oyster fork may be set as a seventh item. Normally, if more than six items are required, each additional piece must be set with its related meal item. For example, if six items are already planned and dessert is to be served, place the dessert fork or spoon in the proper location on the table when serving the dessert.

Arrangement of Individual Place Settings

Individual place settings are traditionally arranged as follows.

Dinner or Service Plate—The dinner or service plate is placed directly in front of each chair. The ideal spacing of plates for family style or formal occasions is 24 inches from plate center to plate center. This is close enough to permit easy conversation and provides enough room for each individual diner. The dinner plate is omitted on the table when American, cafeteria, buffet style, or a la carte style is used.

Silverware—Silverware is placed about 1 inch from the edge of the table and close to the plate. It is placed according to the order in which it will be used—the outermost pieces being used first. Knives are placed next to the plate on the right side with the cutting edge toward the plate. Spoons are placed to the right of the knives with the bowl up. Forks, except oyster forks, are placed on the left side of the plate. When the oyster fork is used, it goes to the right of the spoon. Usually, not more than six pieces of silverware are placed at a cover. During a formal dinner, when additional silver is required, it is brought in with the course requiring its use.

Bread and butter plate—The bread and butter plate, when used, is placed to the left of the dinner plate, above the points of the forks.

Beverage glasses—The water glass is placed to the right of the dinner plate above the points of the knives. The water glass is set for lunch unless another chilled beverage is to be used. It is a wide, short 10-ounce glass and is used only for water. The beverage glass is a taller, narrower 10-ounce glass and is used for lunch or dinner when milk, iced tea, or other chilled beverages are served. The juice glass is a small 6-ounce glass. It is not set but is used to serve juice when ordered by the diner. It is used only at breakfast.

Coffee cup—The coffee cup is set upside down on the saucer and is placed just to the upper right of the outer spoon.

Napkin—The napkin, which may be either cloth or paper, is placed either to the left of the forks or on the dinner plate.

After all covers are set, check the table once again to see that all covers are alike and that nothing was omitted. Be certain that spoons are laid with bowls up and that the cutting edges of knives are turned toward the plate. Place the chairs so that the front edge of the seats are just against or under the drop of the tablecloth.

Dining Table Center Items

After setting individual places, you should then set the dining table center items. Normally,

there are two types of center items, standard and meal-related. The standard center items will always be placed on the dining table when setting up the table.

STANDARD CENTER ITEMS.—Figure 10-3 shows standard center items. The descriptions of these items are as follows:

1. The sugar bowl is a small, silver, oval-shaped container with a short pedestal stand and lid. It is always set with a sugar spoon.
2. Salt and pepper shakers may be all silver or they may be glass with silver tops. The salt should always be kept loose and dry, and both shakers should always be at least three-fourths full when placed on the dining table.
3. The coffee cream pitcher is similar in size and shape to the sugar bowl but has a spout and no top.

One set of these standard items is provided for every six diners. However, a set of salt and pepper shakers is provided for every four diners. The standard center items are arranged with the sugar bowl centered between the salt and pepper shakers on one side of the table and the creamer on the other side. The salt shaker should be placed on the right side toward the head of the table.

Most ships consider some type of centerpiece as standard. This centerpiece usually consists of a silver fruit bowl containing either fresh or artificial fruit for breakfast or fresh or artificial flowers for lunch or dinner. If used, centerpieces should be lined up and arranged across the tables to present a neat, attractive uniform appearance.

MEAL-RELATED CENTER ITEMS.—Figure 10-4 shows meal-related dining table center items. These items are explained next.

Cereal cream pitcher—The cereal cream pitcher is shaped like a small beverage pitcher with a modified hourglass design. It has a handle on one side and a capacity of 16 ounces. It is set only for breakfast or brunch when cereal is to be served.

Syrup pitcher—The syrup pitcher is similar in size and shape to the coffee cream pitcher except that the pouring spout is partially enclosed by a metal lip. It is set only for breakfast or brunch when pancakes or waffles are to be served. It is placed on a coffee cup saucer.

Silver fruit bowl—The silver fruit bowl is a large hollow bowl. It is used for serving fresh fruit for breakfast or brunch and is also often set as a centerpiece containing artificial or real fruit for breakfast or artificial or real flowers for lunch or dinner.

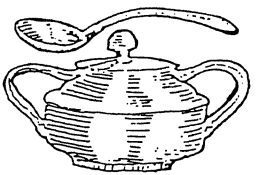
Bread tray—The bread tray is a rectangular silver dish with rounded ends and perforated sides. It is used primarily for breads, but it may also be used for relishes such as carrot or celery sticks. When used for breads, an opened napkin is placed in the tray, the bread is neatly arranged on the napkin, and the edges of the napkin are folded over the bread to retain freshness and warmth.

Cruet and caster—The cruet and caster consists of two stoppered glass bottles placed on

SALT AND PEPPER SHAKERS

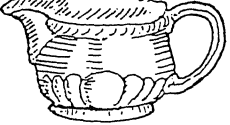
CENTERPIECE

COFFEE CREAM PITCHER

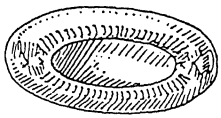


SUGAR BOWL

Figure 10-3.—Standard center items.



SYRUP PITCHER

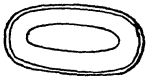


BREAD TRAY

BUCK

CRUET AND CASTER

SILVER FRUIT BOWL



BUTTER DISH

PICKLE FORK

CEREAL CREAM PITCHER

Figure 10-4.—Meal-related center items.

all tray. The bottles hold oil and vinegar salad sings when salads are served at lunch or er.

Butter dish—The butter dish is a small, ngular china dish with rounded corners. It be used at all meals for serving butter patties. reakfast or brunch, it may be used for serving or jelly packets.

Pickle fork—The pickle fork is used only at n or dinner when pickles or other relishes are d. It is placed on the relish (bread) tray. The e fork has three tines and is similar in shape e diner's oyster fork, but is slightly larger.

he buck—A buck is normally a small object, as a statue, a model, or a dummy weapon round, which is used aboard some ships to designate which diner is to be served first. The buck is not used at breakfast, at brunch, or when guests are to be served.

Set meal-related center items—Meal-related items are selected on the basis of menu requirements. Examine the menu and identify those menu items for which related center items are normally used (that is, jellies and syrup at breakfast, pencils for filling out order forms, and so forth). For semiformal lunch or dinner, the bread, if served, is placed on the dining table after the main course item. For all informal style lunch or dinner meals, bread is set 5 minutes before the meal.

Set the buck—When used, a marker called the buck is set just above a designated diner's main

course plate. It is moved one seat to the right for each meal, thereby giving each wardroom member a regular opportunity to be served first. Wardroom members normally sit at the same place for lunch and dinner. The buck is not used at breakfast, when diners enter at random times, or when guests are present, since guests are usually served first.

Setting the Sideboard

Most wardrooms are equipped with a waist-high cabinet known as the sideboard. Its storage spaces are used for storing wardroom linen and tableware, and the top forms a counter for the placement of hot and cold beverage services and extra tableware in preparation for a meal.

SETTING UP THE HOT BEVERAGE SERVICE.—The principal hot beverage used aboard ship is coffee. Hot tea or hot chocolate may also be used if desired by wardroom members. The hot beverage service should be set up following placement of the linen on the sideboard. The following steps explain beverage service setup.

1. To set up this service, you should take coffeepots (one for each 10 to 12 diners) from the sideboard to the pantry and obtain enough coffee for the meal. Place the pots on the sideboard coffee warmers. Select at least one coffee pitcher for each dining table and place on the linen next to the coffee warmers. Coffee servers should be filled just before serving and should not be placed on the warmers.
2. To set up hot tea or chocolate, you should put hot water in a coffeepot and set on the coffee warmer. Arrange tea serving pots next to the warmer. The number of teapots is determined by the wardroom supervisor or through experience. Tea bags or hot chocolate packets should be placed next to the serving pots.

SETTING UP THE COLD BEVERAGE SERVICE.—To set up the cold beverage service, you should take serving pitchers from the sideboard to the pantry to obtain the cold beverages. Water is always made available even if another beverage is served. Cold beverages are prechilled and placed on the table just before announcing the meal. The pitchers should be ready on the sideboard for refills.

If fruit juices are called for in the breakfast menu, a galley serving pan insert should be filled with enough ice to cover half the height of the glasses and then placed on the sideboard. The juice glasses are then filled to the bulge with juice and placed in the ice to cool.

SETTING UP EXTRA TABLEWARE.—The required amount of extra tableware will normally be determined by the wardroom supervisor. Considerations that may influence the amount of extra tableware required include occasional breakage of china during meals and the possibility of unexpected diners. Additionally, if a second seating of diners is required due to limited wardroom seating capacity, sufficient tableware should be placed on the sideboard to permit quick resetting of the dining table after the first seating has finished.

Obtain and neatly place the necessary items on the covered portion of the sideboard. Dishes and bowls may be stacked several high. Cups and glasses should not be stacked, especially during rough seas. Silverware should be arranged by type and napkins should be prefolded and stacked near the silverware.

Just Before Serving

There are some details that should be taken care of just before the members are seated.

- Fill water glasses in the pantry (three-fourths full for ease of handling and less chance of spilling) and place on the table.
- Arrange butter patties on small plates and set out two per table.
- Make sure fresh coffee is ready for those who desire coffee with their meal.
- Make sure condiments such as cream, sugar, salt, and pepper, necessary for the particular meal being served, are available before serving.
- Make sure the buck is on the table if it is used at that meal.

Seating Arrangement

In the wardroom where regulations and precedence closely control seating arrangements, officers are assigned to permanent seats for daily meals and are seated from left to right, as shown in figure 10-5 according to rank and precedence.

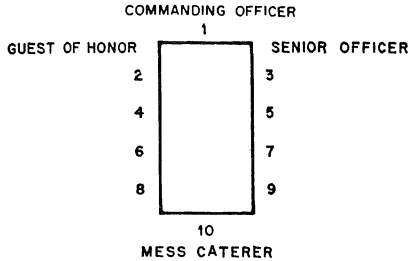


Figure 10-5.—Wardroom seating.

The senior line officer in command, or in succession to command, is the president and sits at the head of the table, or at the head of the senior table when more than one table is used. The commanding officer who regularly eats in the wardroom is the president. When the commanding officer has his or her own mess, the executive officer is the president. The exception would be on large ships that have more than one wardroom. In this case, the senior line officer of each mess is the president. However, when the commanding officer or other senior officer is invited for an occasional meal, this officer is considered to be the guest of honor and is seated to the right of the mess president.

The caterer sits opposite the president. The officer next in rank sits in the first seat to the right of the president, and the officer third in rank sits in the first seat to the left of the president, and so on down the table. All line officers of the same grade take precedence with each other according to their respective dates of rank. When they have the same date of rank, their precedence is according to their lineal numbers as given in the official Navy Register.

Staff officers with the same date of rank as running mates of the line take precedence AFTER their running mates of the line but ahead of all line and staff officers who are junior to the running mate. When officers of more than one staff corps have the same running mate, they take precedence in the following order: Medical Corps, Supply Corps, Chaplain Corps, Civil Engineering Corps, Judge Advocate General's Corps, Dental Corps, Medical Service Corps, Nurse Corps.

When more than one table is in use, the treasurer usually sits at the head of the junior table.

The seating arrangement changes when a guest is present. When several guests are to be present, the seating arrangements are normally worked out by the wardroom supervisor and approved by the caterer. Place cards are prepared to eliminate confusion. The place card is laid flat on the napkin.

When officers of other service branches have the same relative grade and the same date of rank, they have precedence according to the time each has served on active duty as a commissioned officer of the United States Armed Forces.

MEAL SERVICE

Meals should begin immediately after the president and the officers are seated. Prompt and courteous service adds much to the enjoyment of a meal, and serving personnel must be alert. They should not lean on the sideboard or lounge against the bulkhead when they are not busy. With proper training, serving personnel will know what their responsibilities are and how they should be met.

The meal may be announced by using the xylophone (fig. 10-6) or by announcing the

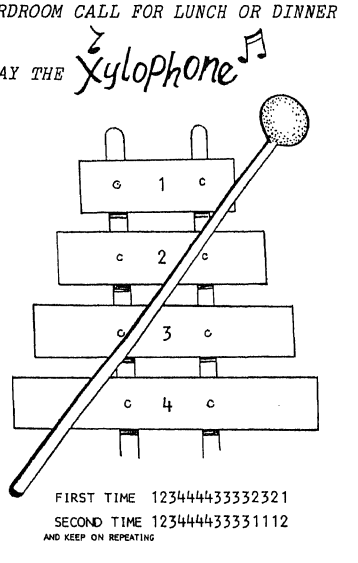


Figure 10-6.—Xylophone for announcing meals.

traditional "dinner (or whichever meal) is served."

Serving Order

The president or the officer in front of whom the buck is placed is served first, and then the service proceeds counterclockwise around the table.

Informal Meal Service

All meals are served either by family, cafeteria, American, buffet, a la carte service, or by a combination of these, as discussed earlier. Figure 10-7 shows a table setting for an informal meal.

Foods, including soups, are served from the left of the person being served. Beverages are served from the right.

Soup is normally ladled into the soup plates in the pantry and served rather than offered to the officer at the table.

The rule of thumb to follow during formal and informal service is to serve the foods from the left and remove from the right, with the exception of beverages.

To avoid overcrowding the table during family style service, refill the water glasses as necessary instead of placing a water pitcher on the table for officers to help themselves. In other types of service such as cafeteria, a water pitcher may be placed on the table for those who desire refills.

Coffee should be available at all times and served piping hot. Be careful when serving coffee and other hot beverages especially aboard ship when the ship is underway. An accidental spill can cause a painful burn.

When an officer has finished a course, remove the used dishes. Do not stack the dishes in front of the officer. With the right hand, remove the plate and silverware used during the course. When more than one plate is being removed, hold the first in the left hand and place the others on top of it.

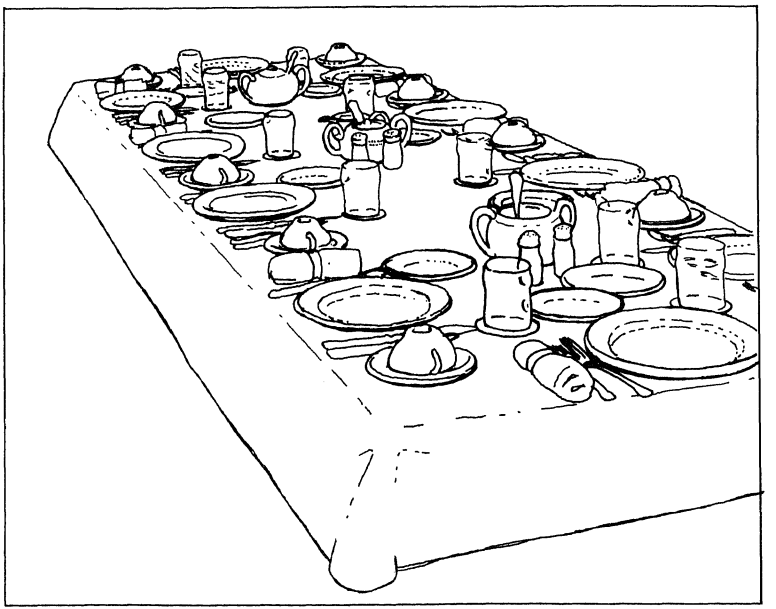


Figure 10-7.—Wardroom table set up for an informal meal.

When desserts are not picked up from the line, they should be served. Place a pitcher of hot coffee on the table for those desiring seconds and place ashtrays within the officers' reach.

When guests are present, some changes to the seating and serving order are necessary. Although some of these changes were mentioned earlier, bringing them together at this point will help you to recognize what routines must be changed.

The buck is not used when guests are aboard. A guest of the ship or the guest of honor sits to the right of the president and is always served first. Other guests usually sit to the right of their host officer. When no guest of honor is present and more than one officer has guests, the guest of the senior host officer is served first. In all cases, after serving the guest of honor, the serving continues from that point counterclockwise around the table. You do not skip around in order to serve all guests first.

Formal Table Setting and Service

The service required for formal meals is more elaborate than for informal meals. However, the table setting is basically the same as for informal meals. Usually four or five courses are served, but as few as three or as many as seven may be served. All food from each course is served to all diners in prompt succession. For a formal dinner everything is served; nothing is set on the table except the salt and pepper shakers. Condiments and other seasonings are served at the appropriate time. A table setting for a formal dinner is shown in figure 10-8.

Service plates are normally used at formal dinners. These are large plates that are placed on the table at the time it is set for the meal. They are not removed until replaced by the heated dinner plate for the first hot course after the soup. They are used only because it is considered bad form for the diners not to have plates before them throughout the meal until the table is cleared for dessert. No food is placed directly on the service plate. Instead, dishes containing the first courses of the meal, such as fruit, oysters, and soup, are set upon the service plate. Although bread and butter plates were never used for formal dinners in the past, they are frequently used today.

All foods are served from the left, and beverages are served from the right. Dishes are removed from the right. An exception to this rule is the replacing of silverware. Those pieces of silverware that are placed to the right of the place plate are replaced from the right. In this way it is not necessary to reach in front of the diner.

Assuming that the meal being served uses the table setting pictured in figure 10-8, the following order of service would be observed.

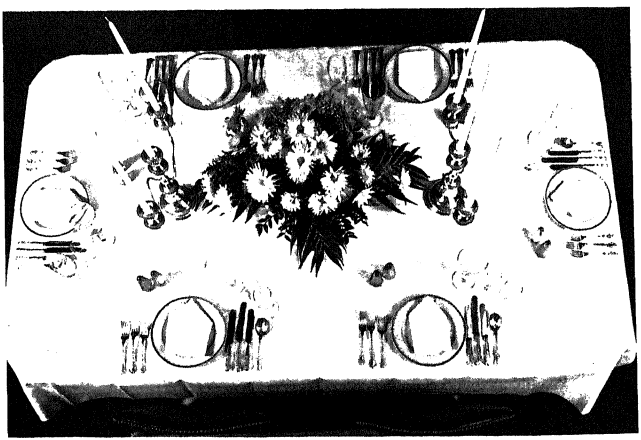


Figure 10-8.—Table set for a formal dinner.

As soon as the members and their guests are seated, the first course, shrimp cocktail, is served.

When all have finished the course, the shrimp cocktail glass (often a sherbet glass) is removed with the used silverware, and the soup course is served.

When all have finished the soup course, the soup plate, service plate, and soup spoon are removed. The heated dinner plate replaces the service plate for the main course. The food is brought in on a platter or in serving dishes. The food is presented to the guest who is seated to the right of the host. The service then proceeds counterclockwise around the table.

Upon completion of the main course, the dinner plate and used silverware are removed, and the salad plate is put in its place. To provide faster service, the salad is usually arranged on the salad plate before it is brought in.

When all have finished their salads, the salad plate and silverware are removed. At this point, the only items remaining from the original setting are the water and wine glasses. Before the dessert is served, the crumbs, if any, should be brushed off the table by the use of a folded napkin and tray. The dessert course with appropriate silverware is then placed before the diners.

Coffee is served with the dessert course or following it. If cups are placed on the table and coffee offered to those who want it, service is from the right.

It is customary not to smoke at formal dinners until after the coffee or demitasse has been served. When allowed, at the appropriate time cigarettes and/or cigars are passed and ashtrays are placed before those persons desiring them.

Semiformal Table Setting and Service

The individual place settings are similar to those used in the informal meal styles. Few center items are used other than salt and pepper shakers, sugar bowls, and creamers.

In this style of individual service, each item of food is brought to the dining table and offered to each diner. Serving dishes, other than the main course item, are placed on serving trays before they are brought into the dining areas. To prevent the serving dishes from sliding, a clean damp cloth should be placed on the tray.

When all diners are seated, individual servings of the first course, soup and salad or shrimp cocktail, are brought to the dining table and placed on the service plate in front of the diner. If both salad or shrimp cocktail and soup are to be served, the salad or shrimp cocktail is set on the table before the diners arrive and the soup is served after the diners have been seated. The order of delivery to the diners will be according to the rules specified previously. When the diners have finished the first course and the used china (including the service plate and silverware) has been removed, the main course items are served. Each food item will be in a separate serving dish and will be served in the following order.

The meat dish is arranged on a meat platter and comes first. Serving utensils, usually a tablespoon and a main course fork, are carried in the right hand while the platter is carried in the left. The platter and serving utensils are offered on the left side of the first diner to be served. When the first diner has served himself or herself, he or she replaces the serving utensils on the platter, which is then offered to the next diner. There should be no need to touch the serving utensils again unless a diner leaves them in an awkward position for the next diner.

The starch food item comes next. It is served in an appropriate serving dish carried on a serving tray. The tray is carried in the left hand and the serving utensils, a tablespoon and main course fork, are carried in the right hand. They are offered to the first diner in the same manner as the meat.

The vegetable comes next and is served in the same manner as the starchy food.

The gravy or sauce is served last unless it is to be used only for the meat. If so, it is served immediately after the meat. The gravy boat is also placed on a serving tray. The tray is carried in the left hand and the ladle in the right. Both are offered to the first diner to be served. The ladle should then be kept in the gravy boat as it is offered to other diners.

This type of service is best accomplished when there are four servers at each table, so that each person can be responsible for serving only one item. Fewer personnel can do this type of service if there are not many diners to be served.

When two or more persons are serving the food and a serving dish is emptied, the server should quickly return to the pantry for a refill.

While this is happening, serving should stop until the refilled dish has been presented to the next diner. To prevent long delays in service, a space of two or three diners should be maintained between servers.

When all diners have been served the main course, bread or rolls and butter can be brought to the dining table and placed in the center. The

amount will be determined by the wardroom supervisor. Refills of food items are seldom available during a semiformal meal, but if a diner asks for seconds, the wardroom supervisor will decide if the request can be granted.

If dessert is to be served, it will be served to diners in the same order as the other food items after all the main course tableware has been removed from the table. Each diner is offered the dessert and is not served unless he or she replies in the affirmative.

Serving Beverages

The serving of beverages was discussed earlier; however, presented below are four general guidelines and several specific procedures for serving beverages.

The first guideline is that beverages are to be served from the diner's right if at all possible. Otherwise, check with the wardroom supervisor about how to serve the beverages in a way that disturbs the least number of diners.

The second guideline is that the server should never lift the diners' glasses or cups from the dining table to refill them. Rather, he or she should pour the beverage into them while they are on the table. If the cup or glass is not conveniently placed for service, carefully move it to a better location, or if it cannot be reached, politely ask the diner to move it.

The third guideline is that the order of service for beverages is the same as that for the serving of foods.

The fourth guideline is to not fill serving pitchers to the tip when they are to be used for filling glasses or cups at the dining table. A full pitcher is difficult to handle and feels quite heavy after a while. Therefore, pitchers should be filled between one-half and two-thirds full.

Finally, it is important to remember that each wardroom mess may have certain rules for serving beverages. The wardroom supervisor should be asked about these rules.

After the Meal

You should immediately restore the wardroom to its pre-meal condition as soon as possible after the meal. Some helpful suggestions are as follows:

- Clear the table as soon as all officers have finished eating and left the table. Return all
- Refill the salt and pepper shakers as needed and store them in the pantry.
- Inspect the napkins and place the soiled ones in the laundry. Refold those suitable for reuse and replace them in their respective napkin rings (when they are used) and store in the napkin storage area. Single-service paper napkins are being used in many private messes for regular meals and cloth napkins are used only for more formal occasions.
- Brush the crumbs from the tablecloth. Be careful not to rub food particles into the fabric.
- Shake the cloth out lightly and refold it along its original creases. Reroll or refold the silence pad as appropriate, and store it with the tablecloth.
- Replace the table cover.

Wardroom Care

Field day is the time to do those major cleaning jobs that are not necessary every day. These jobs are not in place of, but in addition to, the daily cleaning jobs.

Most cleaning can be done with the materials regularly used aboard ship. However, because there are a variety of materials used in the furnishings and fixtures of the wardroom, commercial cleaning products often give better results on some materials than the cleaning products used for the routine cleaning.

The following is a list of some of the jobs that should be performed at least weekly:

- Sideboards—remove the drawers and clean thoroughly.
- Silverware—inspect for signs of tarnish and polish as required. Stainless steel flatware with decorative handles is now available through the supply system for use in private messes.
- Paintwork—scrub and wash.
- Wood paneling—clean with furniture.
- Table, chairs, and sofa covers—inspect and take the soiled ones to the dry cleaner.

- Lounge furniture with vinyl upholstery—check and clean as necessary.
- Carpeting—shampoo as necessary.

Watch Supervision

The type of wardroom watch that is maintained depends on the need of the wardroom and the number of people available. In port, a watch is normally maintained after supper lasting through 2200. At sea, a 24-hour watch may be set up. The person on watch in the wardroom should do the following:

- Make sure fresh coffee is available at all times during his or her watch period.
- Check the wardroom frequently and tidy it up as necessary.
- Remove used plates and coffee cups from the wardroom and wash them.
- Empty, wash, and dry ashtrays.
- Smooth table cover and replace chairs.
- Dump trash and garbage in the trash container on the pier.
- Make sure the wardroom and pantry are clean before the relief takes over.

The watch supervisor is usually responsible for enforcing the wardroom and pantry regulations, for making sure food is not handed out to unauthorized persons, and for prohibiting the use of the wardroom or pantry as a lounge by enlisted personnel.

CHAPTER 11

QUARTERS AFLOAT AND ASHORE

Chapter 1 described the purpose, types, and organization of officers' quarters afloat. It also explained the types of quarters provided for officers and enlisted personnel ashore.

This chapter will explain the procedures for the operation and care of officers' quarters afloat. It will also explain the organization of bachelor quarters ashore and the resulting operational responsibilities that are assigned to MSs.

OFFICERS' QUARTERS AFLOAT

Officers' quarters (or staterooms) aboard ship must show maximum habitability just like the wardroom. Certain responsibilities for stateroom care and service are assigned to the wardroom mess.

MESS CATERER

The mess caterer is responsible for the efficient management of the officers' staterooms, including maintenance and repair of government-owned equipment and stateroom facilities. The caterer is also responsible for providing linen, laundry, and cleaning services.

LEADING MESS PETTY OFFICER

The senior enlisted person assigned to the wardroom mess is the leading mess petty officer. The leading mess petty officer is responsible to the mess caterer for both the supervision of foodservice and stateroom service personnel and the daily details of the wardroom mess operation.

STATEROOM SUPERVISOR

Ship's size often will dictate whether or not a stateroom supervisor is assigned. If assigned, the stateroom supervisor is responsible to the leading mess petty officer for supervising the personnel assigned to stateroom service.

OTHER ASSIGNED PERSONNEL

MS personnel are responsible for performing functions associated with the management and operation of officers' quarters afloat. However, a rotational pool of enlisted personnel in paygrades E-1 through E-3 may be provided to assist the MSs in providing maintenance, cleaning, and other services.

When assigned, the rotational pool is under the supervision of an MS and may perform the following duties:

1. Daily bed making services and weekly bed linen changing for the commanding officer, executive officer, unit commander, and officers in paygrades O-5 and above
2. Maintenance and cleaning of all staterooms and associated living spaces
3. Cleaning of passageways and heads in officers' quarters
4. Making sure officers' beds have clean linen and soiled hand and bath towels are changed twice weekly, airing bedding, turning mattresses, vacuuming bunks, washing paintwork, and having chair covers and bedspreads dry-cleaned quarterly
5. Assisting MS personnel in the cleaning and maintenance of foodservice spaces including wardroom service and food preparation

OFFICER REGISTRATION

In an ideal situation, the wardroom officer would be notified before an officer's pending arrival. Normally, a new officer is assigned to a stateroom by the wardroom officer or mess treasurer. Registration procedures vary between ships, but the Registration Record, NAVCOMPT Form 2104, is recommended for use in registering officers. More detailed information about the registration record is given later in this chapter.

As an MS3, you may be assigned to supervise stateroom services afloat. As a supervisor, you are expected to manage and coordinate the

activities of personnel who provide stateroom service. Some of your duties are as follows:

1. Planning the work schedule
2. Developing efficient methods for cleaning and maintaining the staterooms using limited cleaning equipment and supplies available
3. Practicing proper inventory management regarding linen, supplies, and cleaning equipment
4. Being familiar with the location of each stateroom, the easiest route to the ship's laundry, and laundry pickup schedules

CONTROL OF LINEN, CLEANING EQUIPMENT, AND SUPPLIES

Aside from being expensive, supplies afloat are limited. A separate record should be kept for linen, cleaning equipment, and consumable supplies. You should establish a high and low limit for all items used to help determine your requirements.

CARE OF QUARTERS

Basic officer stateroom maintenance service, which includes sweeping, dusting, sink cleaning, painting, laundry services, and security, is explained next.

Stateroom Security

One important rule to follow in cleaning staterooms is to avoid disturbing anything of a private nature that has been left laying about. Occasionally, officers rush off leaving letters, papers, money, or other valuables in sight. These instances should be reported at once to the officer, the wardroom leading MS, or the stateroom supervisor. Furthermore, papers, books, or letters should not be examined if left laying around. These may concern official Navy matters or the officer's personal affairs. In either case, they are to be treated as private property. If valuables or other items of a private nature must be removed when cleaning, be sure they are put back where they were found.

Stateroom Care

Daily cleaning is necessary, but the extent to which spaces are cleaned may vary with particular circumstances. More uniform cleaning can be done by the use of a cleaning bill. An example of a stateroom cleaning bill follows:

DAILY

a. Clean washbasin, mirror, soap container and toothbrush holders.

b. Make up beds for officers O-5 and above.

c. Sweep and mop deck or vacuum carpet.

d. Empty and wash ashtrays.

e. Empty wastebaskets.

f. Dust all furniture.

WEEKLY

a. Wash paintwork.

b. Polish brightwork.

c. Clean electric fans and wipe down light fixtures.

e. Replace soiled hand and bath towels and replace with clean ones as scheduled.

f. Deliver and pick up officers' laundry as scheduled.

g. Replace stripped linens with fresh clean ones. Leave linens on top of beds (O-4 and below only), as scheduled.

h. Scrub and wax deck or spot-check carpet and remove stains as scheduled.

i. Clean air-conditioning filters and screens.

j. Hold general field day for certain staterooms as scheduled. Stand by for inspection.

CLEAN AS SCHEDULED

a. Turn mattress over and vacuum underneath (monthly—preferably during linen change).

b. Send draperies, curtains, chair covers, and bedspreads for dry cleaning (quarterly).

c. Shampoo carpets (quarterly).

Mail Service

MSs may be designated to act as mail orderlies. When acting as mail orderlies, they pick up the mail from the staterooms at prescheduled times and deliver it to the post office. MSs may also draw officer mail from the postal clerk and deliver it. Mail should never be left undelivered in the wardroom. Mail orderlies must not be required to mail or pick up registered, certified, or insured mail.

Personal Service

The following services are considered of a personal nature and are the sole responsibility of individual officers:

- Bed making and bed linen changing except for O-5 and above
- Care, maintenance, and orderliness of personal effects which include military uniforms, uniform accessories, and shoes
- Sorting and storage of personal laundry

Care of Heads and Showers

An example of a cleaning bill for stateroom heads and showers follows:

DAILY

a. Clean washbasins and wipe down mirrors.

b. Refill soap and towel dispensers.

c. Clean utility sink and storage area.

d. Wipe down shower curtains.

e. Scrub down shower stalls.

f. Wipe down glass doors or stainless steel doors.

g. Scrub rubber mats and air dry.

h. Scrub, clean, and disinfect/sanitize urinals and commodes (use rubber gloves).

i. Wipe down partitions or dividers.

j. Sweep and swab deck with hot soapy water and disinfectant.

k. Replenish toilet paper.

l. Empty trash can.

m. Clean and neatly store all cleaning gear in locker.

WEEKLY

a. Scrub down bulkhead.

b. Clean overhead and light fixtures.

c. Scrub down shower curtains; replace as required.

d. Descale urinals and commodes.

e. Wipe down and polish stainless steel and all other brightwork.

f. Sweep, swab, and scrub deck with hot soapy water and disinfectant.

CLEAN AS SCHEDULED

a. Replace burned-out bulbs as required.

b. Replace missing curtain hooks and rubber mats.

c. Check for water leaks; cold and hot water.

Care of Deck Coverings

There are various types of floor coverings provided for the interior decks such as vinyl, linoleum, and terrazzo. These coverings require special care. Rough and improper maintenance quickly destroys the appearance and durability of these coverings. Before cleaning and finishing these coverings, you should refer to the NAVSUP P-421 for information on the proper cleaning solution and the type of wax that should be used.

Passageways and Vestibules

Passageways and vestibules are also important parts of the responsibilities of MSs and rotational pool personnel and must be incorporated in the

daily and weekly schedules. An example of a passageway and vestibule cleaning bill follows:

DAILY

a. Sweep down ladders; vacuum if necessary.

b. Sweep, swab, and buff passageways and vestibule decks.

c. Wipe down ladder handrails with hot soapy water.

d. Clean around deck coaming or hatch openings.

e. Check angle irons and ledges for gear adrift.

f. Clean scuttlebutts.

WEEKLY

a. Spot-check bulkheads and scrub down as required.

b. Sweep, swab, wax, and buff decks.

c. Dust overhead, light fixtures, and air vents.

d. Clean baseboards and make sure all corners are completely cleaned.

e. Scrub down ladders and dust guards with hot soapy water.

f. Clean knife edges of hatches and ports.

g. Polish brightwork as scheduled.

CLEAN AS SCHEDULED

a. Strip wax once every 2 weeks or as scheduled.

b. Check nonskid deck treads; replace as required.

c. Check for burned-out bulbs and replace as required.

d. Check quarterly for preservation and paint as required.

BACHELOR QUARTERS ASHORE

Bachelor quarters (BQs) are established to provide essential lodging for eligible personnel. The Chief of Naval Operations has assigned the responsibility for providing administrative and technical guidance for the operation of BQs to the Commander, Naval Military Personnel Command (COMNAVMILPERSCOM). To discharge this responsibility, COMNAVMILPERSCOM issues directives and requires financial reports for BQ billeting funds. It also provides technical assistance and training for BQ officers and operating personnel. The Navy's commitment to operating effective BQs ashore may be summarized as follows.

The Navy has an obligation to provide all authorized residents of Navy BQs with a healthful living environment located in clean, well-maintained, comfortable facilities. To meet this obligation, sufficient resources, including personnel, facilities, and funds, will be committed. Further, Navy BQs will be operated in a manner that will provide the residents with as much privacy, security, and freedom as possible.

Navy BQs will be managed in a manner that conserves resources and protects the Navy's investment in facilities and personnel support equipment (PSE).

To provide the level of professional management necessary for Navy BQs, a trained core of managers is required. These managers will be drawn primarily from the MS rating.

As an MS, you may be assigned duty in a BQ ashore in either bachelor officers' quarters (BOQ) or bachelor enlisted quarters (BEQ). Wherever or whatever your specific duties, to perform them well, you must be thoroughly knowledgeable, possess leadership ability, and be a service-oriented individual.

BQ MANAGEMENT ORGANIZATION

The BQ management organization is centralized in Washington, DC, under COMNAVMILPERSCOM (N-671), and has the following responsibilities:

- Developing and implementing administrative procedures that pertain to Navy BQs

- Achieving the objectives of the Navywide personnel support facilities (PSFs) within the

overall objectives of the Military Construction Program

- Evaluating the habitability, occupancy criteria, and design of BQs

- Developing policy that governs assignment, termination, and use of bachelor housing

- Providing liaison to the Chief of Naval Education and Training (CNET) with a view toward establishing and improving BQ management training

- Inspecting BQ operations by use of the management assistance and inspection teams to ensure compliance with OPNAVINSTs 11103.1, 11103.2, 11103.3, and other applicable directives

- Providing beneficial suggestions and recommendations for improving living conditions, reducing costs, and providing classroom and on-the-job training tailored to each command's needs

CLASSIFICATION OF PERSONNEL ASSIGNED DUTIES IN BQs

When MS personnel are not readily available, officers, chief warrant officers, or other enlisted personnel may be assigned command supervision, management, and administrative billets in BQs. However, enlisted personnel in rotational pools are not permitted to perform housekeeping functions in BOQs, except at isolated bases having only military personnel aboard, and then only when approved by CNMPC (N-671).

BQ personnel may also include civil service, nonappropriated fund, and contract employees.

Civil Service Employees

Civil service employees are civilian employees paid from appropriated funds. They may be assigned duties in BQs where military personnel are not available. These duties may be either BQ, BOQ, or BEQ officer or other positions if the commanding officer deems it necessary for the proper operation and management of the BQ. Information governing civil service employees can be found in the *Federal Personnel Manual.*

Nonappropriated Fund Employees

Nonappropriated fund employees are civilian employees paid from nonappropriated funds. Additional information and requirements pertaining to nonappropriated fund employees are contained in SECNAVINST 5300.22.

Contract Civilian Employees

Contract civilian employees are not governed by any of the rules and regulations mentioned previously. Compliance to the provision of the contract and any collective bargaining agreement applicable to employees performing on this contract is subject to the requirements of the Service Contract Act.

OPERATIONAL RESPONSIBILITIES

Centralization of management refers to the direct management control of all BQs (less those assigned to the U.S. Marine Corps) by the commanding officer on whose real property account these buildings appear and to consolidation under one specific department (for example, administrative, supply, or personnel) in the chain of command. Under the management system, tighter control, better accountability, fuller occupancy of quarters, and further savings in resources can be realized.

Liaison must be established between the BQ officer and tenant representatives to discuss responsibilities, establish communications, and promote a cooperative atmosphere to improve conditions and habitability of the personnel concerned.

Responsibilities of the host commanding officer are as follows:

- Development and implementation of rules and regulations

- Assignments and terminations, including issuance of all certificates of nonavailability and approval of all authorizations for payment of basic allowance for quarters (BAQ, single)

- Use of housing assets and preparation of inventory, occupancy, and utilization reports

- Review of all reports containing BQ information including cost, maintenance, and performance data

- Control of issue, repair, and procurement of furnishings

- Coordination of utilities conservation efforts and facilities management activities

- Development of BQ requirements surveys and development of program data

Responsibilities of the tenant commanding officer are as follows:

- Support host command BQ regulations

- Participate in quarters inspections on a regular basis

- Provide self-help program for the improvement of bachelor housing

- Provide host with information as to personnel drawing single BAQ in compliance with host policies and procedures

- Inform BQ officer of troop movements

BQ Advisory Committee

The purpose of the BQ advisory committee is to give residents a direct line of communication to management and command without being diluted or filtered. The committee deals with many areas of resident involvement, some of which are as follows:

- Determining residents' likes or dislikes

- Hearing suggestions and complaints

- Fostering self-help programs

- Improving resident involvement

- Gaining resources for the BQ

- Organizing resident action

- Establishing command positions

- Helping reduce vandalism/theft problems

Membership in the BQ advisory committee must be voluntary and representative of a cross section of the occupants according to rank/rate, building, floor or wing, and so forth. (The committee chairman is selected from the group.) The meetings should be attended by the BQ officer and building petty officers (BPOs). BQ staff members should keep a low profile and do not have a vote. It may be beneficial to periodically invite the host commanding officer, executive officer, department heads, Navy exchange officer, and so forth, to attend these meetings as observers. These meetings should be open to all hands who live in the quarters.

The meeting place, time, and date should be announced at least 1 week in advance. It is preferable to schedule it at a regular time, for instance, the first Monday of every month at 1800. The minutes will be forwarded to the commanding officer for comment via the chain of command. It is desirable that the commanding officer make comments as appropriate and return them to the residents. The minutes along with the commanding officer's comments should then be posted on the official bulletin board and in the BQ newsletter. The largest circulation possible is desirable.

The advisory committee is not intended to replace the normal chain of command. It should be used in conjunction with the chain of command to be beneficial. The advisory committee will not engage in management decisions or duties.

BQ Officer

The commanding officer appoints a BQ officer who holds the position on a full-time basis. The BQ officer has the following authority and responsibilities:

- Manages the BQ assets

- Serves as communication link between public works, the executive officer, and the BOQ or BEQ officer

- Authorizes work requests for corrective and preventive maintenance

- Is responsible for proper administration and operation of the central assignment and records desk

- Is responsible for providing accommodations that meet minimum adequacy standards

- Serves as the commanding officer's designated representative for the certification of nonavailability of quarters

- Prepares and submits budget for the operation of the BQ to the commanding officer

- As appropriate, originates or provides input to all correspondence relating to the BQ operation, specifically BQ inventory, occupancy, and utilization reporting (OPNAVINST 11103.2)

The BQ officer will be provided with an operating budget for the purchase of custodial equipment and supplies, office equipment and supplies, linen, and so forth.

BOQ and BEQ Officers

The BOQ and BEQ officers are the direct representatives of the BQ officer and, as such, are responsible for the administration and management of the BOQ and BEQ.

Generally, the BOQ and BEQ officers have the following similar responsibilities:

- Exercise overall supervision of the operation of the BOQ or BEQ, including budgeting and comprehensive advanced planning

- Serve as custodian of all records and property of the BOQ or BEQ

- Assign duties and supervise the work of the enlisted personnel and civilian employees engaged in the various activities of the BQ

- Establish a continuing training program for all operating personnel

- Verify the receipts of merchandise and equipment

- Maintain accurate records and accounts of the BQ

- Act as division officer for the enlisted personnel assigned to the BQ

- Sign purchase orders when present; otherwise, assign this duty to the purchasing agent who meets or contacts vendors

- Must be responsible for the receipts, safekeeping, deposit, disbursement, and accountability of funds

- Prepare monthly financial statement of the BQ

Central Assignment and Records Desk (CARD)

To maximize the effective use of limited staffing resources, the establishment of a centralized assignment desk is strongly recommended. Where the presence of outlying quarters makes it impractical to maintain a central desk, a satellite desk is recommended. A further savings in manpower can be realized by locating both the linen issue and cleaning gear checkout point in one central area. The size of the BQ complex will determine the number of personnel required to meet these functions. The CARD personnel are responsible to the BQ officer.

As the CARD is one of the first places an incoming individual encounters, it is necessary that the CARD personnel be capable of providing a courteous and prompt berthing assignment in a service-oriented, responsible atmosphere. Since first impressions are often lasting ones, the CARD is the point at which the individual should be greeted and be issued the station welcome aboard pamphlet. It is the CARD clerk who should be able to answer incoming personnel inquiries pertaining to meal hours, base transportation, and so forth. Also, it is at this time that the residents should be advised as to their responsibilities while living in the quarters.

The CARD is the single contact point for the initial issue of linen, room assignments, and keys. Use of this method in the assignment of all bachelor enlisted and officers' quarters results in tighter control, better accountability, fuller utilization, and more accurate reporting of matters concerning the availability and capacity of quarters, such as the number of per diem authorizations granted.

When physical facilities do not permit guests and visitors access to the functional living area of the occupant, a special emphasis should be placed on the appearance of the CARD area, as it will serve as the locator and waiting or meeting area for the occupants and their guests.

The CARD clerk must have training, the necessary equipment, and a guide that specifies the list of duties. Each duty should be explained separately and should be broken down into its component parts.

The CARD clerk has the following responsibilities:

- Knows the charges that must be collected from certain categories of guests (BOQ operation

only). List of charges should also be posted at the assignment desk.

- Handles service and other charge payments for the BQ billeting fund.

- Must be instructed on how to prepare and complete BOQ and BEQ registration cards.

- Must be courteous, tactful; and maintain a standard method to welcome the incoming residents. The CARD clerk must be familiar with and have read the *Navy Customer Service Manual*, NAVEDTRA 10119.

- Administers the provisions of OPNAVINST 11103.3 and all pertinent Navy and local BQ instructions.

- Provides check-in and check-out service 24 hours a day, 7 days a week.

- Maintains locator file, both alphabetically and by room assignment on all occupants.

- Assigns all personnel (permanent and transient) to adequate rooms or space according to the BQ occupancy plan.

- Prepares and compiles the daily utilization worksheet.

- Coordinates and monitors public works trouble call logbook if a maintenance coordinator is not assigned.

- Maintains strict and accountable room key controls.

- Is the BQ officer's representative during nonworking hours.

- Acts as cashier, handles all incoming funds, and cashes personal checks of the residents.

- Acts as custodian of all lost and found articles. Records should be maintained at the CARD. Periodically a list of items should be posted on the bulletin boards, publicizing items that have been found.

- If a number of items are sold at the CARD as a convenience to the patron, makes sure these items are available to meet the patron's requirements regardless of the hour that the patron may request this service.

Every effort should be made to furnish guests with information that will be helpful to them during their stay at the activity. Bulletin boards and comprehensive information brochures or welcome aboard pamphlets should be standard procedures in all BQs.

WELCOME ABOARD PAMPHLETS.—It is the responsibility of the commanding officer to provide a welcome aboard pamphlet to all residents of the BQ who are reporting for permanent duty. This pamphlet will be the primary source of information for residents and will be provided during check-in. To be effective, the welcome aboard pamphlet will be directed toward the BQ occupant and will be kept to a readable size. The BPO will review the pamphlet with the new resident and will answer questions that may arise. To reduce costs, an information sheet may be provided to all personnel in a transient status.

The following items are mandatory for a welcome aboard pamphlet:

- Copy of the BQ regulations

- List of all services provided (exchanges, churches, special services, and so forth) and their hours of operation

- Base map

- Civilian and military transportation available and schedules of this transportation

- Phone numbers of all emergency and service organizations

- Any information regarding environmental factors, such as hurricane conditions, excessive hot or cold periods or seasons, possible flooding, dangerous animals, and so forth

- The warning signals for any emergency situation must also be given

- Applicable service charges for rooms

Additional Items.—The command should also consider including the following:

- Off-base recreation available

- Command letter of welcome

Transient Information Sheet.—When providing an information sheet for transients, the following must be included:

- Condensed version of the BQ regulations, especially as they apply to transient residents
- Services offered and hours of operations
- Transportation available and schedules
- Emergency phone numbers
- Applicable service charges for rooms
- Base map

NOTE: Transient information sheets cost much less to produce than full welcome aboard pamphlets.

SUGGESTION BOXES.—Suggestion boxes are a good means of establishing communication between residents and the BQ officer. At small commands these boxes should be located at the CARD. Large commands should place them in service areas such as vending areas, laundries, and so forth. The key to the suggestion boxes will be in the custody of the BQ officer. The BQ officer will make sure each suggestion receives a personal or written response. The success of the suggestion box is based primarily on providing positive feedback to the occupant. The suggestions should be discussed at the BQ advisory committee meetings and posted on the bulletin boards with appropriate comments. Consideration should also be given to publishing the suggestions and responses in the BQ newsletter. Suggestions should be forwarded through the chain of command to get the required actions.

NEWSLETTERS.—The BQ newsletter is an excellent method for providing BQ residents with information on current events taking place in the BQ. The newsletter must be kept short, interesting, worth reading, and directed toward the residents. Some of the items that may be included in the newsletter are as follows:

- Minutes of BQ advisory committee meetings
- Suggestions or complaints and the action taken on them
- Projected BQ improvements
- BQ improvements accomplished
- New residents
- Ideas to improve living standards or solve problems

Handling Cash

Your duties may involve handling cash receipts at the front desk. Any funds entrusted to your care must be handled strictly according to the established procedures without taking any shortcuts. This will reduce the chance of error or shortage. As a cashier you are held responsible for all funds in your custody. You are more likely to be involved with collecting cash for service charges. These duties normally include the following:

- Obtaining and counting the change fund
- Operating the cash register
- Receiving payments and making change
- Cashing checks (if authorized)
- Counting cash receipts
- Preparing the daily activity record

CHANGE FUND.—A change fund is an amount of money advanced to a cashier for use in making change. Each cashier signs a receipt for the total value of the change fund and is responsible for it. It is very important, therefore, that you count the change fund BEFORE signing for it to make sure no error has been made.

The cashier normally receives the change fund before going on duty and returns it with the receipts when relieved. When the change fund is passed to a relieving cashier instead of being turned in with the cash receipts, the relieved cashier's cash receipt is documented on the Daily Activity Record, NAVCOMPT Form 221

(fig. 11-1). Since the change fund is actually passed on to the relieving cashier, this fund is said to have "revolved."

THE CASH REGISTER.—Cash registers are normally used at each CARD location where the collection of money is a regular, daily occurrence. The use of a cash register is particularly desirable when written records are not made of each transaction. When a cash register is not available or its use is not practical, a cashbox or drawer may be used. The following discussion applies to

DAILY ACTIVITY RECORD
NAVCOMPT FORM 2211 (REV. 3-72)

REGISTER NO. -3-

NAME OF DEPARTMENT: BOQ Front Desk

SIGNATURE OF CASHIER: E. Halvorson

DATE: 27 April 197_

	ITEM NO.	ITEM	AMOUNT
LINES 1 THRU 6 TO BE FILLED IN BY CASHIER	1.	CASH TURNED IN (DETAIL BELOW - ITEM 20)	$ 622.93
	2.	CHANGE FUND (-) (WHEN TURNED IN WITH RECEIPTS)	150.00
	3.	REFUNDS (+)*	- - -
	4.	CASH SALES	472.93
	5.	CHARGE/COMMERCIAL CREDIT SALES	- - -
	6.	TOTAL SALES: SALES SLIPS OR TICKET NUMBERS 001 THRU 098	$ 472.93
PERSON VERIFYING CASH AND CHARGES WILL VERIFY LINES 1, 2, AND 5 AND FILL IN LINES 7 THRU 11	7.	CHANGE FUND	
	8.	CASH RECEIPTS	
	9.	TOTAL CASH VERIFIED (LINE 7 + 8 = 9)	
	10.	CHARGE SALES	
	11.	TOTAL VERIFIED (LINE 9 + 10 = 11)	$
PERSON READING THE REGISTER WILL FILL IN LINES 13 THRU 18	12.	CLOSING REGISTER READING	
	13.	OPENING REGISTER READING	
	14.	REGISTER AMOUNT (LINE 12 - 13 = 14)	
	15.	OVER-RINGS (-) AND UNDER-RINGS (+)	
	16.	REFUNDS (+) (TO BE USED WHEN REFUNDS ARE REFLECTED IN REGULAR REGISTER READINGS)	
	17.	ADJUSTED REGISTER READING (LINE 14 ± 15 + 16 = 17)	
	18.	CASH OVERAGES OR SHORTAGES (CIRCLE: OVERAGE OR SHORTAGE)	$

19. BREAKDOWN OF REVENUE (TO BE FILLED IN BY BOOKKEEPER)

NAME OF ACCOUNT	ACCOUNT NO.	DEBIT AMOUNT	CREDIT AMOUNT
TOTAL		$	$

* SIGNED REFUND VOUCHERS WILL BE ATTACHED

REMARKS: *(Use reverse side if necessary)*

20. DETAIL OF CASH TURNED IN (TO BE FILLED IN BY CASHIER)

COINS	CENTS	$ .03	
	NICKELS	.75	
	DIMES	.90	
	QUARTERS	4.75	
	HALF-DOLLARS	3.50	
	TOTAL COINS		$ 9.93
CURRENCY	ONE'S	77.00	
	FIVE'S	65.00	
	TEN'S	130.00	
	TWENTY'S	140.00	
	TOTAL CURRENCY		413.00
CHECKS/M.O.'S	U.S. CHECKS	- - -	
	OTHER CHECKS	200.00	
	MONEY ORDERS	- - -	
	TOTAL CHECKS/M.O.'S		$ 200.00
	GRAND TOTAL CASH TURNED IN		$ 622.93

SIGNATURE OF PERSON DESIGNATED TO READ REGISTER: Fernando B. Fratz

SIGNATURE OF PERSON DESIGNATED TO VERIFY CASH AND CHARGES): J. Daggin

NOTE: TO MAKE CORRECTIONS: LINE THROUGH ERROR, WRITE CORRECT AMOUNT ABOVE ERROR, INITIAL AND DATE. CORRECTIONS ARE MADE ONLY BY PERSON MAKING ERROR. NO CORRECTIONS WILL BE MADE TO LINES 1 THROUGH 6.

S/N 0104-706-5200

the use of cash registers, but parts of it are also applicable, with modifications, to the use of a cash drawer or cashbox for cash transactions.

A cash register should give years of service if it is not mistreated. Operating characteristics of the different makes and models vary widely, but most of them perform the same function.

In addition to keys for recording the amount of the transaction, special keys may be provided to indicate "cash sales," "paid out," and "no sale." When more than one cashier uses the same cash register, special keys can be used to identify the cashier handling the transaction. One of the more important functions performed by the cash register is the cumulative totals provided by its registers. Normally, a register is provided for each special key plus a grand total register. The registers are concealed by a locked cover that can be opened only by a key retained by the treasurer or a designated representative. The register totals are obtained by unlocking the cover and reading them visually or by printing out the totals on cash register tape.

A key is also provided to lock the cash register. This key should be held by the cashier. Whenever it is necessary for the cashier to leave the vicinity of the cash register, it should be locked to prevent access by unauthorized persons. The cash drawer of an empty cash register should always be left visibly open.

Special compartments are provided in the cash drawer for the various denominations of coins and bills. You may use whatever sequence you prefer in distributing coins and bills in the compartments, but it should be consistent, and different denominations of coins or bills should not be mixed in one compartment. If the coins and bills are mixed, making change will be more complicated and the possibility of error will be increased. When new bills are received, a corner should be turned down on each one to prevent them from sticking together. Checks and large bills may be placed in separate compartments or beneath the tray of the cash drawer.

PAYMENTS AND CHANGE.—As a cashier you should develop correct habits for handling payments from the patrons. There are five steps that you should follow in any cash transaction.

1. COUNT ALL MONEY you handle carefully. This includes the change fund, the money you receive from customers, and any additional change you have to obtain during the watch.

2. REPEAT ALOUD THE AMOUNT OF MONEY HANDED TO YOU, as well as the amount of sale. By doing this for every sales transaction, you avoid the chance of becoming confused, or the chance of the customer being mistaken about the amount of money given to you. For example, as the person hands you the money, you should say, "Thank you, that will be $4.35 out of $5."

3. LEAVE THE AMOUNT RECEIVED ON THE CHANGE PLATE until you count the change from the cash drawer. If someone interrupts you or you forget, you will have the exact amount received in front of you just below the keys of the cash register. Consequently there can be no question as to the correct amount.

4. COUNT THE CHANGE TWICE—first as you take it from the cash drawer, and again as you give it to the customer. Start counting the change from the amount rung until you build up to the amount received. For example, if you ring up $4.35 out of $5, you would pick up a nickel and a dime from the drawer and count aloud, "Four forty, four fifty," and then pick up two quarters and count, "Four seventy-five, five dollars." Repeat in the same manner as you count the change into the customer's hand. If you or the customer finds an error in the count, take back all the change, make the correction, and then count the change correctly. Be very careful not to put the customer's money into the cash drawer until you have counted out the change and the customer has accepted it.

5. HANDLE ONLY ONE TRANSACTION AT A TIME. Concentrate on one customer exclusively. Take money from only one person at a time. Ring up one sale at a time. Close the cash drawer after completing each transaction.

CASHING CHECKS.—Each facility establishes its policy for cashing checks. As a cashier, your first responsibility will be to thoroughly familiarize yourself with that policy. Usually it will specify which cashiers may cash checks and the maximum amount for which a check can be cashed. This limitation is necessary because most cashiers do not keep a large amount of cash in their cash registers, and cashing large checks could deplete the cash needed for making change.

When accepting checks, either in payment for charges or for cashing, you should comply with the following rules:

- They should be written in ink or indelible pencil.

- They must be dated and signed.
- They must not contain corrections or erasures.
- The amount shown in figures must agree with the amount written out.
- The information on the check should correspond with the personal identification.

CLOSING OUT.—At the close of business or at the end of your watch, you must close out the cash register. The results of this closing out are shown on the Daily Activity Record, NAVCOMPT Form 2211.

The cashier fills in the heading of the form and completes item 20 and lines 1 through 6. The person verifying cash and charges verifies lines 1, 2, and 5, and then completes lines 7 through 11. The next step is to have the person designated to read the cash register fill in lines 11 through 18.

Central Linen and Supply Storeroom (CLASS) Petty Officer

The CLASS petty officer is responsible to the BQ officer for the procurement, custody, and issuance of linens and cleaning supplies. The CLASS petty officer has the following responsibilities:

- Orderly issuing all cleaning supplies and equipment for the BQ
- Processing requisitions for BPOs and placing bulk orders
- Maintaining usage data by accurately documenting issues of supplies
- Making sure proper issue/turn-in procedures are followed
- Ordering products that prove most effective and economical
- Controlling accountability, custody, and issues of linen
- Maintaining accurate linen inventory records
- Accounting for and replacing lost or worn-out linen
- Receiving and turning in linen to a cleaning contractor
- Making sure proper check-in and check-out procedures are followed
- Maintaining an accurate inventory record of PSE
- Maintaining accurate record for all assets (less cash) of the BQ for budget input

Building Petty Officer

The BPO is responsible to the BOQ or BEQ officer for the overall cleanliness, material condition, and operation of a specific building or area. The BPO has the following responsibilities:

- Inspects individual rooms for cleanliness and material condition on a periodic basis
- Procures and provides necessary supplies and equipment to effectively clean and maintain the quarters
- Supervises assigned enlisted personnel and civilian custodial staff in all phases of cleanliness, maintenance, and operation of the BQ
- Conducts daily inspections of all common use areas to make sure they are clean, sanitary, and attractive in appearance and habitability
- Serves as a primary contact between management and residents—to solicit recommendations on building conditions and policy for improvements
- Provides room status to the CARD
- Controls PSE in assigned areas

Baggage Storeroom

At most BQs, a baggage storeroom is maintained to store residents' unused baggage and personal property. The baggage storeroom may be the responsibility of the BPO or the CARD. In either case, the following procedures are used to check items into the baggage storeroom:

1. A standard, sequentially numbered, three-part baggage storeroom form is used. Identification is established by the sequential numbers

along with the name and room number. The top part of the form is attached firmly to the item to be stored. The middle part is stapled to the upper left-hand corner of the registration card. The bottom part is given to the resident.

2. If items are to be stored in a container, a joint inventory must be taken by the resident and the CARD or BPO. A copy of the inventory must be placed in the container and a copy given to the resident.

CARE OF QUARTERS

Care of quarters ashore is really not too different from that required aboard ship. On shore stations, a room attendant will normally be employed to perform bed making and similar hotel services. In fact, quarters maintenance ashore is usually easier because the spaces are less crowded, there are fewer difficult places to clean, and better use can be made of laborsaving equipment.

A well-equipped room service cart will save many steps because all required supplies can be taken to the room in one trip. In addition to carrying all cleaning equipment, the cart should have a place for clean linens, a bag or hamper for soiled linens, and a bag or container into which wastebaskets can be emptied.

Routine care is normally covered by cleaning schedules that list the jobs that are to be done daily and weekly, and personnel are assigned specific cleaning responsibilities. A room inventory should be taken with each daily cleaning using a checkoff list. Any missing items are indicated on the list, and it is referred to the BPO for appropriate action.

Custodial Force (Military or Civilian)

The custodial force is responsible to the BPO for the cleanliness of the BQ. Specifically, the custodial force has the following responsibilities:

- As directed by the BPO, and depending upon the type and configuration of the quarters, cleans all the common use areas and the outside areas of the BQ on a daily basis

- Assists the BPO in maintaining the BQ in an appropriate level of safety, cleanliness, and comfort for the occupants

- Reports directly to the BPO any complaints or suggestions received concerning the BQ and any known or suspected breaches of regulations or discipline within the BQs

Equipment and Supply Rooms

Particular attention should be given to the fact that large amounts of cleaning equipment are ruined and become useless through the simple failure to provide for their proper storage. Brooms, foxtails, and radiator brushes will quickly become useless if they are stored with the weight resting on their fibers; they should be suspended from wall mounts. Buffer brushes must be removed from the buffers when not in use, as the practice of storing buffers with the brushes still attached soon crushes the fibers, resulting in erratic buffer operation and necessitating the early purchase of new brushes.

Close supervision of the custodial cleaners is required to make sure only correct cleaning agents are used for each job, and only the prescribed rations are used when mixing products with water. If required, to avoid unnecessary waste, the BQ staff should premix solutions before their use. Swabs should be marked as to specific use (that is, strip, wax, or rinse) and not interchanged. They should be stored with the strands up, from wall mounts, to allow them to dry properly.

Usage data compiled for the cleaning supplies expended in each building is a valuable tool for both locating areas of waste and determining which cleaning agent is most effective.

High and low limits should be established to make sure adequate supplies are on hand at all times. A record of receipts, issues, and inventory should be maintained by the person in charge of the bulk storeroom area.

APPENDIX I

REFERENCES

Chapter 1

Advancement Handbook for Petty Officers, NAVEDTRA 71485, Chief of Naval Education and Training, Pensacola, FL, January 1989.

Career Planning Guide, NAVSUP P-530, Naval Supply Systems Command, Washington, DC, August 1982.

Foodservice Management, NAVSUP P-486, Naval Supply Systems Command, Washington, DC, September 1988.

Personnel Qualification Standard, NAVEDTRA 43532-1, Chief of Naval Education and Training, Pensacola, FL, March 1989.

Chapter 2

Foodservice Operations, NAVSUP P-421, Naval Supply Systems Command, Washington, DC, August 1987.

Messdeck Master-at-Arms Handbook, NAVSUP P-520, Naval Supply Systems Command, Washington, DC, February 1980.

Navy Food Service, NAVSUP P-476, Naval Supply Systems Command, Washington, DC, 1989.

Chapter 3

Manual of Naval Preventive Medicine, NAVMED P-5010-1, Naval Medical Command, Washington, DC, October 1987.

Chapter 4

Federal Supply Catalog, Group 89, Subsistence, Naval Supply Systems Command, Washington, DC, April 1988.

Veterinary Food Inspection Specialist, FM 8-30, Headquarters, Department of the Army, Washington, DC, August 1986.

Chapter 5

Financial Management Policies and Procedures for MWR Programs, NAVSO P-3520, Chief of Naval Operations, Navy Department, Washington, DC, May 1983.

Chapter 6

Naval Ships' Technical Manual, chapter 9340, Naval Sea Systems Command, Washington, DC, September 1967.

Shipboard Foodservice Equipment Catalog, NAVSUP P-533, Naval Supply Systems Command, Washington, DC, November 1988.

Chapter 7

Armed Forces Recipe Services, NAVSUP P-7, Naval Supply Systems Command, Washington, DC, May 1987.

Chapter 8

Basic Food Preparation, QM0333, Commandant, U.S. Army Quartermaster School, Fort Lee, VA, 1988.

Chapter 9

Baking Operations, FM 10-22, Headquarters, Department of the Army, Washington, DC, 1987.

Bread Baking, QM0486, Commandant, U.S. Army Quartermaster School, Fort Lee, VA, 1988.

Preparation and Serving of Special Food Items, QM0471, Commandant, U.S. Army Quartermaster School, Fort Lee, VA, 1988.

Chapter 10

Navy Customer Service Manual, NAVEDTRA 10119-B1, Naval Education and Training Program Management Support Activity, Pensacola, FL, 1988.

Personal Qualification Standard, NAVEDTRA 43532-2, Chief of Naval Education and Training, Pensacola, FL, April 1989.

Chapter 11

Bachelor Quarters Management Manual, OPNAVINST 11103.3, Chief of

APPENDIX II

THE METRIC SYSTEM

The metric system was developed by French scientists in 1790 and was specifically designed to be an easily used system of weights and measures to benefit science, industry, and commerce. The metric system is calculated entirely in powers of 10, so one need not work with the various mathematical bases used with the English system, such as 12 inches to a foot, 3 feet to a yard, and 5,280 feet to a mile.

The system is based on the "meter" which is one ten-millionth of the distance from the Equator to the North Pole. It is possible to develop worldwide standards from this base of measurement. The metric system of weights is based on the gram, which is the weight of a specific quantity of water.

Soon after the system was developed, scientists over the world adopted it and were able to deal with the mathematics of their experiments more easily. The data and particulars of their work could be understood by other scientists anywhere in the world. During the early 19th century many European nations adopted the new system for engineering and commerce. It was possible for these countries to trade manufactured goods with one another without worrying whether it would be possible to repair machinery from another country without also buying special wrenches and measuring tools. Countries could buy and sell machine tools and other sophisticated and precision machinery without troublesome modifications or alterations. It was much easier to teach the metric system, since meters can be changed to kilometers or centimeters with the movement of a decimal point, which is roughly like being able to convert yards to miles or inches by adding zeros and a decimal instead of multiplying by 1,760 or dividing by 36.

With the exception of the United States, all the industrialized nations of the world have adopted the metric system. Even England and Canada are changing from their traditional

Although the metric system has not been officially legislated by the Congress, the metric system is becoming more prominent in this country. Most automobile mechanics own some metric wrenches to work on foreign cars or foreign components in American cars. Almost all photographic equipment is built to metric standards. Chemicals and drugs are usually sold in metric quantities, and "calorie counters" are using a metric unit of thermal energy.

Because we are allied with countries who use the metric system, much of our military information is in metric terms. Military maps use meters and kilometers instead of miles, and many weapons are in metric sizes, such as 7.62 mm, 20 mm, 40 mm, 75 mm, and 155 mm. Interchange of military equipment has caused a mixture of metric and English measure equipment since World War I when the army adopted the French 75 mm field gun, and World War II when the Navy procured the Swedish 40 mm Bofors a the Swiss 20 mm Oerlikon heavy machine g

It is inevitable that the United State officially adopt the metric system. Exactly this happens and how rapidly the changeover be depend on economics, since the expense retooling our industry and commerce to ne measurements will be very great. The cost o conversion will be offset by increased earning from selling machinery and products overseas. Another benefit is that scientists use the metric system, but their calculations now have to be translated into English measure to be used by industry. With adoption of the metric system ideas can go directly from the drawing board to the assembly line.

The Navy will be using the metric system more during the next few years. Although you will find it easier to solve problems using this system, at first you will find it difficult to visualize or to estimate quantities in unfamiliar units of measure.

Fortunately, many metric units can be related

The meter which is the basic unit is approximately one-tenth longer than a yard.

The basic unit of volume, the liter, is approximately 1 quart. The gram is the weight of a cubic centimeter, or milliliter, of pure water and is the basic unit of weight. As a common weight though, the kilogram, or kilo, which equals the weight of a liter of water, weighs 2.2 pounds. The cubic centimeter (cc) is used where we would use the square inch, and where we measure by the fluid ounce, the metric system employs the milliliter (ml). For power measure the metric system uses the kilowatt (kW), which is approximately 1.3 horsepower.

In terms of distance, a land mile is eight-fifths of a kilometer and a nautical mile is 1.852 kilometers, or nearly 2 kilometers.

A basic metric expression of pressure is the kilogram per square centimeter, which is 14.2 psi, nearly 1 atmosphere of pressure.

When working on foreign machinery, you may notice that your 1/2-inch, 3/4-inch, and 1-inch wrenches will fit many of the bolts. These sizes correspond to 13 mm, 19 mm, and 26 mm respectively in the metric system and are very popular because they are interchangeable. The 13/16-inch spark plug wrench, which is standard in this country, is intended to fit a 20 mm nut.

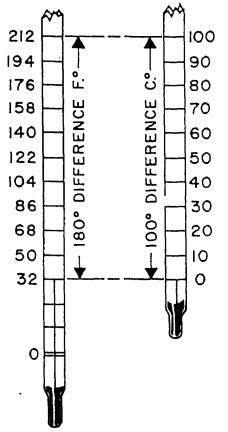
The basic quantities of the metric system are multiplied or divided by powers of 10 to give other workable values. We cannot easily measure machine parts in terms of a meter, so the millimeter, or one-thousandth of a meter is used. For very fine measure the micron, also called the micrometer, can be used. It is one-millionth part of a meter, or one-thousandth of a millimeter. For small weights the milligram, one-thousandth of a gram, is used. All these multiples are expressed with standard prefixes taken from Latin:

micro	= 1/1,000,000
milli	= 1/1,000
centi	= 1/100
*deci	= 1/10
*deca	= 10
*hecto	= 100
kilo	= 1,000
*myria	= 10,000
mega	= 1,000,000

*Rarely used

Over the next few years the metric system will become more used by the Navy as well as by the civilian world. You will find it easy to work with once you have mastered the basic terms. It will be difficult to translate values from our present system to the metric system, but this operation will become unnecessary once the new measurements are totally adopted.

Tables of equivalent English measure and metric equivalents are essential when you work simultaneously with both systems. The table that follows shows the equivalent measures of the two systems. The columns on the left have the equivalent values that are accurate enough for most work, and on the right are the multiples used to convert the values with a high degree of accuracy.



Fahrenheit and centigrade scales showing differences in freezing and boiling points.

The conversion from one scale to the other can be done by studying the accompanying illustration and applying the following principles:

The boiling point of water is 100 °C (or centigrade) and 212 °F (or Fahrenheit); the freezing point is 0 °C and 32 °F. The difference between the boiling point and the freezing point of water is 100 °C and 180 °F. Therefore, within this span on the thermometers 1 °C is equal to 1.8 °F.

However, temperature readings on either scale
e taken in respect to the number of degrees
low or above zero, thus 32° must be added to
e 180°F in order to obtain the total reading
om the Fahrenheit zero point. Substituting
ese values into the conversion formula
C × 1.8) + 32°, we have (100° × 1.8) + 32°
212°F.

If we wish to convert Fahrenheit degrees to
ntigrade degrees, the algebraic order of
lculation must be reversed and we find that
(°F − 32°) ÷ 1.8 = °C. Substituting the values we find (212° − 32°) ÷ 1.8 = 100°C.

To recapitulate, conversion formulas are as follows:

$$°F = (°C \times 1.8) + 32°$$

$$°C = (°F - 32°) \div 1.8$$

For those who prefer to use fractions in computations, the fraction 9/5 may be substituted for 1.8.

THESE PREFIXES MAY BE APPLIED TO ALL SI UNITS

Multiples and Submultiples	Prefixes	Symbols
1 000 000 000 000 = 10^{12}	tera (tĕr′ȧ)	T
1 000 000 000 = 10^{9}	giga (jĭ′gȧ)	G
1 000 000 = 10^{6}	mega (mĕg′ȧ)	M*
1 000 = 10^{3}	kilo (kĭl′ō)	k*
100 = 10^{2}	hecto (hĕk′tō)	h
10 = 10	deka (dĕk′ȧ)	da
0.1 = 10^{-1}	deci (dĕs′ĭ)	d
0.01 = 10^{-2}	centi (sĕn′tĭ)	c*
0.001 = 10^{-3}	milli (mĭl′ĭ)	m*
0.000 001 = 10^{-6}	micro (mī′krō)	μ*
0.000 000 001 = 10^{-9}	nano (nan′ō)	n
0.000 000 000 001 = 10^{-12}	pico (pē′kō)	p
0.000 000 000 000 001 = 10^{-15}	femto (fĕm′tō)	f
0.000 000 000 000 000 001 = 10^{-18}	atto (ăt′tō)	a

* Most commonly used

Multiply	By	To Obtain
Acres	40.47	Ares
Acres	4,047	Centares
Acres	10	Square chains
Acres	43,560	Square Feet
Acres	4,840	Square Yards
Ares	0.02471	Acres
Ares	100	Centares
Ares	1,076	Square Feet
Ares	119.6	Square Yards
Barrels (U.S., dry)	3.281	Bushels
Barrels (U.S., liquid)	4.21	Cubic Feet
Barrels (U.S., liquid)	31.5	Gallons
Board Feet (1′ × 1′ × 1′)	144	Cubic inches
Cable lengths (U.S.)	120	Fathoms
Cable lengths (U.S.)	720	Feet
Cable lengths (U.S.)	240	Yards
Centares	10.76	Square feet
Centares	1.196	Square Yards
Centimeters	0.3937	Inches
Cubic Centimeters	0.06102	Cubic Inches
Chains	66	Feet
Chains	100	Links
Chains	4	Rods
Cubic Feet	1,728	Cubic Inches
Cubic Feet	0.02832	Cubic Meters
Cubic Feet	0.03704	Cubic Yards
Cubic Feet	6.229	Gallons (British)
Cubic Feet	7.481	Gallons (U.S.)
Cubic Feet	28.316	Liters
Cubic Inches	16.39	Cubic Centimeters
Cubic Inches	0.0005787	Cubic Feet
Cubic Inches	0.003606	Gallons (British)
Cubic Inches	0.004329	Gallons (U.S.)
Cubic Inches	0.01639	Liters
Cubic Meters	35.31	Cubic Feet
Cubic Meters	1.308	Cubic Yards
Cubic Yards	27	Cubic Feet
Cubic Yards	0.7646	Cubic Meters
Cubic Yards	764.6	Liters
Degrees (C.)+ 17.8	1.8	Degrees (F.)
Degrees (F.) −32	0.5556	Degrees (C.)
Degrees	0.01745	Radians
Fathoms	0.00833	Cable Lengths (U.S.)
Fathoms	6	Feet
Fathoms	1.8288	Meters
Feet	30.48	Centimeters
Feet	0.1667	Fathoms
Feet	0.3048	Meters
Feet per Minute	0.01136	Miles per Hour
Feet per Second	0.5921	Knots
Feet per Second	18.288	Meters per Minute

Multiply	By	To Obtain
Feet per Second	0.6818	Miles per Hour
Furlongs	10	Chains
Furlongs	660	Feet
Furlongs	40	Rods
Furlongs	220	Yards
Gallons (British)	4,546.1	Cubic Centimeters
Gallons (British)	0.1605	Cubic Feet
Gallons (British)	277.274	Cubic Inches
Gallons (British)	1.2009	Gallons (U.S.)
Gallons (British)	4.546	Liters
Gallons (British)	4	Quarts (British)
Gallons (U.S.)	0.03175	Barrels (liquid, U.S.)
Gallons (U.S.)	3,785.4	Cubic Centimeters
Gallons (U.S.)	0.13368	Cubic Feet
Gallons (U.S.)	231	Cubic Inches
Gallons (U.S.)	0.8327	Gallons (British)
Gallons (U.S.)	3.785	Liters
Gallons (U.S.)	4	Quarts (U.S.)
Grams	15.43	Grains
Grams	0.001	Kilograms
Grams	1,000	Milligrams
Grams	0.03527	Ounces (avoirdupois)
Hands	10.16	Centimeters
Hands	4	Inches
Hectares	2.471	Acres
Hectares	100	Ares
Hectoliters	0.1	Cubic Meters
Hectoliters	26.417	Gallons (U.S.)
Hectoliters	100	Liters
Hogsheads	2	Barrels (Liquid, U.S.)
Hogsheads (U.S.)	63	Gallons (U.S.)
Hundredweights	0.508	Quintals (metric)
Inches	72	Points
Inches	6	Picas
Inches	6	Ems
Inches	12	Ens
Inches	2.54	Centimeters
Inches	0.0833	Feet
Inches	1,000	Mils
Inches	0.0277	Yards
Inches of Mercury	0.49131	Pounds per Square Inch
Kilograms	1,000	Grams
Kilograms	2.2046	Pounds (Avoirdupois)
Kiloliters	1	Cubic Meters
Kiloliters	1.308	Cubic Yards
Kiloliters	264.18	Gallons (U.S.)
Kiloliters	1,000	Liters
Kilometers	4.557	Cable Lengths

Multiply	By	To Obtain
Kilometers	0.5396	Miles, Nautical
Kilometers	0.62137	Miles, Statute
Kilometers	1,093.6	Yards
Knots	1.1516	Statute Miles per Hour
Knots	1.688	Feet per Second
Leagues, Nautical	25.33	Cable Lengths
Leagues, Nautical	5.5597	Kilometers
Leagues, Nautical	3	Miles, Nautical
Leagues, Statute	4.8280	Kilometers
Leagues, Statute	3	Miles, Statute
Links	7.92	Inches
Liters	1,000	Cubic Centimeters
Liters	61.025	Cubic Inches
Liters	0.21998	Gallons (British)
Liters	0.26418	Gallons (U.S.)
Liters	0.8799	Quarts (British)
Liters	0.908	Quarts (U.S., dry)
Liters	1.0567	Quarts (Liquid, U.S.)
Meters	100	Centimeters
Meters	0.001	Kilometers
Meters	1.0936	Yards
Meters	3.281	Feet
Meters	39.37	Inches
Meters	1,000	Millimeters
Meters	1.0936	Yards
Meters per Minute	0.0547	Feet per Second
Meters per Second	2.237	Miles per Hour
Microns	0.001	Millimeters
Miles, Nautical	8.44	Cable Lengths
Miles, Nautical	6,076.1	Feet
Miles, Nautical	72,963	Inches
Miles, Nautical	1.8532	Kilometers
Miles, Nautical	1,853.2	Meters
Miles, Nautical	1.1508	Miles, Statute
Miles, Nautical	1	Minutes of Latitude
Miles, Nautical	2,026.8	Yards
Miles per Hour (Statute)	88	Feet per Minute
Miles per Hour (Statute)	1.467	Feet per Second
Miles per Hour	0.8684	Knots
Miles, Statute	7.33	Cable Lengths
Miles, Statute	5,280	Feet
Miles, Statute	8	Furlongs
Miles, Statute	63,360	Inches
Miles, Statute	1.6093	Kilometers
Miles, Statute	1,609.3	Meters
Miles, Statute	0.8689	Miles, Nautical
Miles, Statute	1,760	Yards
Millier (See Tons-Metric)		
Milliradians	206.265	Seconds of Arc
Mils	0.001	Inches
Myriameters	10	Kilometers

Multiply	By	To Obtain
Ounces (avoirdupois)	28.3495	Grams
Pint (Liquid, U.S.)	4	Gills (U.S.)
Pint (Liquid, Br.)	4	Gills (British)
Pint (Liquid, Br.)	0.56825	Liters
Pint (Liquid, U.S.)	0.4732	Liters
Pounds (avoirdupois)	7,000	Grains
Pounds (avoirdupois)	453.59	Grams
Pounds (avoirdupois)	0.4536	Kilograms
Pounds (avoirdupois)	16	Ounces
Pounds (avoirdupois)	1.2153	Pounds (troy)
Pounds (troy)	0.8229	Pounds (avoirdupois)
Pounds per Square Inch	2.03537	Inches of Mercury
Quart (British)	1.1365	Liters
Quart (British)	2	Pints (British)
Quart (Liquid, U.S.)	0.9463	Liters
Quart (U.S.)	2	Pints (U.S.)
Quintals (Metric)	1.97	Hundredweights
Quintals (Metric)	100	Kilograms
Radians	57.30	Degrees
Rods	16.3	Feet
Rods	25	Links
Square Centimeters	0.1550	Square Inches
Square Feet	0.0929	Centares
Square Feet	929	Square Centimeters
Square Feet	144	Square Inches
Square Feet	0.1111	Square Yards
Square Inches	6.452	Square Centimeters
Square Inches	0.006944	Square Feet
Square Kilometers	100	Hectares
Square Kilometers	0.3861	Square Miles (Statute)
Square Meters (See Centares)		
Square Miles, Statute	640	Acres
Square Miles, Statute	25,900	Ares
Square Miles, Statute	259	Hectares
Square Miles, Statute	2.59	Square Kilometers
Square Yards	0.8362	Centares
Square Yards	9	Square Feet
Square Yards	1,296	Square Inches
Tons (Long)	1.016	Metric Tons
Tons (Long)	2,240	Pounds (Avoirdupois)
Tons (Metric) (Millier)	1,000	Kilograms
Tons (Metric) (Millier)	2,204.6	Pounds (Avoirdupois)
Tons (Short)	0.0972	Metric Tons
Tons (Short)	2,000	Pounds (Avoirdupois)
Yards	91.44	Centimeters
Yards	0.9144	Meters

APPENDIX III

GLOSSARY

ABSORPTION—(Baking term) Refers to the property of flour to absorb and hold liquid. (Frying) Refers to fat absorption in food products as they are fried in deep fat.

ACIDITY—Sourness or tartness in a food product; a condition indicating excess fermentation in yeast dough; with soda, generates carbon dioxide for leavening in cakes.

AERATION—The treatment of dough or batter by charging with gas to produce a volume increase; to induce air so that a mass becomes lighter or fluffier.

AEROBIC BACTERIA—Those that require the presence of free oxygen, such as found in the air, for growth.

AGING—A flavor-enhancing process usually applied to beef. The meat is hung in a temperature-controlled room for a specific period of time. During this time a chemical reaction occurs in the meat; it becomes more tender because of the partial "digestion" of the connective tissue in the meat. Aged flavor is noticeable after 21 days at chill temperatures.

A LA KING—Food served with a rich cream sauce usually containing green peppers and pimientos and sometimes mushrooms or onions.

A LA MODE—In a fashion or the style of; for example, desserts served with ice cream or pot roast of beef cooked with vegetables.

ALBUMEN—Egg white.

ALMOND PASTE—A confection ingredient made of finely ground almonds and sugar.

AMBROSIA—(Greek mythology) Descriptive term applying to any food or drink exquisitely gratifying in taste or scent; the name of a favorite southern dessert made of oranges, bananas, pineapple, and shredded coconut.

AMOEBA—One of the simplest forms of animal life; grows in water.

ANAEROBIC BACTERIA—Those that grow in an absence of free oxygen, deriving oxygen from solid or liquid materials and producing toxic substances.

ANGLAISE—(French) English, a la anglaise means "in English style," as consome anglaise.

ANTIPASTI—(or Antipasto) (Italian) An appetizer, or a spicy first course consisting of relishes, cold sliced meats rolled with or without stuffings, fish, or other hors d'oeuvres eaten with a fork.

ANTISEPTIC—An agent that may or may not kill microorganisms, but does inhibit their growth. Peroxide is an example.

APPETIZER—A small portion of food or drink before, or as the first course of, a meal. These include a wide assortment of items ranging from cocktails, canapes, and hors d'oeuvres to plain fruit juices. The function of an appetizer is to pep up the appetite.

ASPIC—(French) A molded jelly made from different preparations. The base is gelatin which sets the mixture. Various liquids may be used, but tomato juice is most common. Recipes may require chopped vegetables, fish, poultry, or meats in aspic.

AU GRATIN—(French) Food creamed or moistened with eggs, milk, or stock, covered with bread crumbs and butter or cheese, and baked until the top is brown.

AU JUS—(French) With natural juice. Roast rib au jus, for example, is beef served with unthickened gravy.

AU NATUREL—(French) In a natural manner. A dish served in a simple style.

BACILLI—Cylindrical or rod-shaped bacteria responsible for such diseases as botulism, typhoid fever, and tuberculosis.

BACTERIA—Microscopic, one-celled organisms found in soil, water, and most material throughout nature. Some are responsible for disease and food spoilage, others are useful in industrial fermentation.

BACTERICIDE—Any substance that kills bacteria and related forms of life.

BAKE—To cook by dry heat in an oven either covered or uncovered. Usually called roasting when referring to meats.

BARBECUE—To roast slowly, basting with a highly seasoned sauce.

BASTE—To moisten foods while cooking, especially, while roasting meat. Melted fat, meat drippings, stock, water and fat, or water may be used.

BATTER—A homogeneous mixture of ingredients with liquid to make a mass that is semiliquid.

BAVARIAN CABBAGE—(German) Sauteed cabbage with onions and vinegar.

BAVARIAN CREAM—(German) A variation of soft custard into which gelatin and whipped cream and sometimes egg whites and flavoring are folded.

BEAT—To blend and introduce air by using a rapid over-and-over or rotary motion.

BECHAMEL SAUCE—(French) A seasoned cream sauce with meat stock; egg yolks may be added for color and different consistency. Used for vegetables, meat, fish, and poultry.

BENCH TOLERANCE—(Baking term) The property of dough to ferment at a rate slow enough to prevent overfermentation while dough is being made up into units on the bench.

BISQUE—(French) A thick soup, usually made with a white sauce base and containing fish, shellfish, chicken, or cooked meat. Ingredients are pureed. Also, a rich frozen dessert, often containing powdered nuts or macaroons.

BLANCH—1. To partially cook in hot, deep fat for a short time until clear but not brown. Used for potatoes. 2. To rinse with boiling water, drain, and rinse with cold water. Used for rice, macaroni, and other pastas to prevent sticking. 3. A method used to remove skins from almonds.

BLANCMANGE—(French) Literally, "white food." A pudding thickened with cornstarch only.

BLEEDING—Dough that has been cut and left unsealed at the cut, thus permitting the escape of leavening gas. Also applies to icing that bleeds.

BLEND—To thoroughly mix two or more ingredients.

BOIL—To cook in a liquid that bubbles actively during the time of cooking. The boiling temperature at sea level is 212°F.

BOTULINUS—A deadly bacterium that develops in canned foods that have been improperly canned.

BOUILLON—(French) A clear soup made from beef or chicken stock. May be used as a soup or gravy base. Obtainable in cubes or powder for reconstituting.

BOWL KNIFE—A spatula or flexible dull-edge knife used to scrape batter or dough from bowl sides.

BRAISE—To brown meat or vegetables in a small amount of fat, then to cook slowly, covered, at simmering temperature (185° to 210°F) in a small amount of liquid. The liquid may be juices from meat or added water, milk, or meat stock.

BRAN—Skin or outer covering of the wheat kernel.

BREAD—To cover with crumbs or other suitable dry coating ingredient; or to dredge in a mixture of flour, seasonings, and/or condiments, dip in a mixture of milk and slightly beaten eggs and then dredge in bread crumbs.

BROIL—To cook under or over direct heat; to grill. No liquid is added. Oven—to cook in an oven, uncovered. Griddle—to cook uncovered on a hot griddle, removing grease as it accumulates.

BROWN—To seal juices inside a piece of food by searing its surfaces on a hot griddle or pan.

BRUNSWICK STEW—A main dish composed of a combination of poultry, meats, and vegetables.

BUTTERFLY—A method of cutting double chops (usually pork) from boneless loin strips. The double chops are joined by a thin layer of meat.

BUTTERHORNS—Basic sweet dough cut and shaped like horns.

BUTTERSCOTCH—A flavor produced by the use of butter and brown sugar.

BUTTER SPONGE—Cake made from sponge cake batter to which shortening has been added.

CACCIATIORE—(Italian) Refers to a chicken cooked "hunter" style. Browned chicken is braised in a sauce made with tomatoes, other vegetables, stock, and herbs.

CAMEMBERT—Soft, full-flavored cheese.

CANAPE—(French) An appetizer eaten with the fingers, served either hot or cold. Small pieces of bread, toast, or crackers topped with a tasty spread.

CANDY—To cook in sugar or syrup.

CAPON—A young male bird that has been castrated at an early age, to improve the flavor, and fattened.

CARAMELIZE—To heat sugar or food containing sugar until sugar melts and a brown color and characteristic flavor develops.

CARAMELIZED SUGAR—Dry sugar heated with constant stirring until melted and dark in color, used for flavoring and coloring.

CARBOHYDRATES—Sugars and starches derived chiefly from fruits and vegetable sources that contain set amounts of carbon, hydrogen, and oxygen.

CARBON DIOXIDE—A colorless, tasteless, edible gas obtained during fermentation or from a combination of soda and acid.

CARDAMON—Seed of an East Indian spice plant used for flavoring.

CARRIERS—Persons who harbor and send out germs without having symptoms of a disease. The individual has either had the disease at one time and continues to excrete the organism, or has never manifested symptoms because of good resistance to the disease.

CHIFFONADE—(or Chiffonnade) (French) A method of cutting foods into fine strips to be used as garnished. (See Julienne.)

CHIFFONADE DRESSING—A salad dressing containing strips of hard-cooked eggs and beets.

CHIFFON CAKE—A sponge cake containing liquid shortening.

CHIFFON PIE—A pie shell filled with a rich custard-type filling into which whipped egg whites and/or cream have been folded.

CHILI—(Spanish) A pepper or its fruit. Dried chili peppers are ground into chili powder.

CHILI CON CARNE—(Mexican) A dish consisting of ground beef and beans seasoned with chili powder.

CHOP—To cut food into irregular small pieces with a knife or chopper.

CHOP SUEY—A thick stew originating in American-Chinese restaurants, composed of thin slices of pork and various vegetables, among which is a generous amount of bean sprouts, celery, and onions.

COAGULATE—To curdle, clot, congeal, or solidify.

CHOUX PASTE—A pastry dough interlayered with butter or shortening to attain flakiness; leavened during baking by the internally generated steam; used to make eclairs and cream puffs; also called puff paste.

CHUTNEY—A pickle relish originating in India. Many kinds and amounts of different ingredients are used.

COAT—To cover entire surface of food with a given mixture.

COMPOUNDS—(Baking term) Certain mixtures of fats and oils.

CONDIMENTS—Substances that in themselves furnish little nourishment but have stimulating flavor.

CONGEALING POINT—Temperature at which a liquid changes to a plastic or solid.

CONSOMME—(French) A clear soup made from two or more kinds of concentrated meat stock.

COOKING LOSSES—Weight loss, loss of nutrients, and possibly a lowered palatability resulting from cooking foods.

CORN—A method of preserving and seasoning with salt brine and other preservatives.

CREAMING—The process of mixing and aerating shortening and another solid, such as sugar or flour; to thoroughly blend.

CREAM PUFFS—Baked puffs of cream puff dough that are hollow; usually filled with whipped cream or cooked custard.

CREOLE—A sauce cooked and used over poultry served with rice or a casserole dish of poultry or seafood and rice cooked in such a sauce.

CRESCENT ROLLS—Hard-crusted rolls shaped into crescents, often with seeds on top.

CRIPPLE—A misshapen, burnt, or otherwise undesirable baked item.

CROQUETTE—(French) A product made by incorporating a minced vegetable, fish, poultry, or meat into shaped balls or cones that are rolled in crumbs and fried.

CROUTONS—(French) Bread cut into small, cubed pieces and either fried or browned in the oven, depending upon the intended use. They are fried for use as a garnish or baked when used as an accompaniment for soup.

CRULLERS—Long, twisted, baking powder doughnuts.

CRUSTING—Formation of dry crust on surface of doughs due to evaporation of water from the surface.

CUBE—To cut any food into square-shaped pieces.

CURDLE—To change into curd; to coagulate or thicken.

CURRANT—The acid berry of several species of shrubs of the gooseberry family; used primarily for jelly and jam.

CURRY—A powder made from many spices and used as a seasoning for Indian and Oriental dishes (shrimp or chicken curry).

CUT IN—Baking term that means to combine solid shortening and flour with a pastry blender or knife.

DANISH PASTRY—A flaky yeast dough having butter or shortening rolled into it.

DASH—A scant one-eighth teaspoon.

DEMITASSE—A half cup. In this country, the term is applied to after-dinner coffee, which is usually served in half-size cups. Demitasse coffee is usually made stronger than that served with a meal.

DIASTASE—An enzyme possessing the power to convert starches into dextrose and maltose.

DICE—to cut into cubes of approximately one-fourth inch.

DISINFECTANT—A chemical agent that destroys bacterial and other harmful organisms.

DISSOLVE—To mix a solid dry substance with a liquid until solid is in solution.

DIVIDER—(Baking term) A machine used to cut dough into a desired size or weight.

DOCK—To punch a number of vertical impressions in a dough with a smooth round stick about the size of a pencil to allow for expansion and permit gas to escape during baking.

DOUGH—The thickened uncooked mass of combined ingredients for bread, rolls, and cookies, but usually applied to bread.

DRAWN BUTTER—(or Sauce) When salted butter is melted, the salt separates from the oil and settles. The oily portion is poured, or "drawn" off, hence, the name. Drawn butter may be used unthickened, seasoned with a little lemon or a dash of Worchestershire sauce and a bit of chopped parsley, chives, or mint. Drawn butter sauce is a thickened sauce made from drawn butter and used with fish, shellfish, and green vegetables.

DREDGE—To coat food items with flour, sugar, or meal.

DRESS—As applied to food: to prepare for cooking or for the table, as to dress a chicken.

DRIPPINGS—Fat and juices dripped from roasted meat.

DRY YEAST—A dehydrated form of yeast.

DUCHESS—(or Duchesse) A name given to various mixtures to which beaten whole eggs (or whites only in some dessert items) are added. The mixture is shaped into balls and baked. A method used most often with mashed potatoes.

DUSTING—A light film of flour or starch that is placed on pans or workbench to prevent dough from sticking.

ECLAIR—(French) A small filled pastry made from cream puff batter (or choux paste). The filling varies, but usually is vanilla cream filling or whipped cream injected from a special tube filler. The baked, filled shell is dusted with confectioners' sugar or covered with a thin layer of chocolate.

EMULSIFICATION—The process of blending together fat and water solutions to produce a stable mixture that will not separate on standing.

ENCHILADAS—(Mexican) A dish popular in many parts of the United States consisting of tortillas topped with a meat sauce and cheese.

ENRICHED BREAD—Bread made from enriched flour and containing federally prescribed amounts of thiamin, riboflavin, iron, and niacin.

ENTREE—(French) An intermediary course of a meal, which in the United States is the "main" course.

ENZYME—A substance produced by living organisms that has the power to bring about changes in organic materials.

EXTRACT—Essence of fruits or spices used for flavoring.

FERMENTATION—The chemical change of an organic compound due to action of living organisms (yeast or bacteria), usually producing a leavening gas.

FIESTA—(Spanish) Designates a special recipe used on holidays in Spain.

FILET—(French) Designates a French method of dressing fish, poultry, or meat to exclude bones and include whole muscle strips. The English term is *fillet*.

FILET CHATEAUBRIAND—Extra thick filet mignon, Russian style, baked in the oven.

FILET MIGNON—May be tenderloin of beef, mutton, veal, or pork.

FINGER ROLL—A bun about 5 inches long and 1 inch wide.

FLOUR:

BLEACHED FLOUR—Flour that has been treated by a chemical to remove its natural color and make it white.

BOLTING—Sifting of ground grain to remove the bran and coarse particles.

CLEAR FLOUR—Lower grade and higher ash content flour remaining after the patent flour has been separated.

PATENT FLOUR—The flour made from the choice, inner portion of the wheat grain.

STRAIGHT FLOUR—Flour containing all the wheat grain except the bran, termed 100 percent.

STRONG FLOUR—One that is suitable for the production of bread of good volume and quality because of its gas retaining qualities.

WATER ABSORPTION—The ability of flour to absorb water. Factors that affect this ability are age of the flour, moisture content, wheat from which it is milled, storage conditions, and milling process.

FLUFF—A mass of beaten egg white, air, and crushed fruit.

FOAM—Mass of beaten egg and sugar, as in sponge cake before the flour is added.

FOLD IN—To combine ingredients very gently with an up-and-over motion, lifting one ingredient up through the others.

FONDUE—A dish made of melted cheese, butter, eggs, milk, and bread crumbs. The dish has many variations.

FOOD INFECTION—A food-borne illness that is obtained from ingesting foods carrying bacteria that later multiply within the body and produce disease.

FOOD POISONING—Food intoxication. A food-borne illness contracted through ingesting food containing some poisonous substance.

FOO YOUNG—(Chinese) A dish made with scrambled eggs or omelet with cut Chinese vegetables, onions, and meat. Usually, the dish is served with a sauce.

FORMULA—In baking, a recipe giving ingredients, amounts to be used, and the method of preparing the finished product.

FRANCONIA—(German) An ancient German territory. In culinary sense, means "browned," as whole potatoes browned with roast.

FREEZE DRYING—Drying method where the product is first frozen and then placed in a vacuum chamber (freeze dehydration). Aided by small controlled inputs of thermal or microwave energy, the moisture in the product passes directly from the ice-crystalline state to moisture vapor and is evacuated.

FRENCH BREAD—An unsweetened, crusty bread, baked in a narrow loaf, and containing little or no shortening.

FRENCHING—A method of preparing boneless veal or pork chops by flattening with a cleaver.

FRICASSEE—To cook by braising; usually applied to poultry or veal cut into pieces.

FRITTERS—Originally a small portion of fruit dipped in batter and fried. The term now includes plain fried balls of batter or balls containing chopped meat, poultry, fruit, or vegetables.

FRIZZLE—To cook in a small amount of fat until food is crisp and curled at the edges; a meat crimped, frizzed, or curled at the edges, as frizzled dried beef and scrambled eggs.

FRY—To cook in hot fat. When a small amount of fat is used, the process is known as panfrying or sauteing; when food is partially covered by the fat, shallow frying; and when food is completely covered, deep-fat frying.

FUMIGANT—A gaseous or colloidal substance used to destroy insects or pests.

FUNGICIDE—An agent that destroys fungi.

GARNISH—To decorate a dish with colorful, savory food items, such as sprigs of parsley placed around fish or potatoes or a colorful bit of fruit added to a dessert.

GELATINIZE—The swelling of starch particles in hot water.

GERM—A pathogenic, or disease-producing, bacterium; a living substance capable of developing into an animal or plant.

GERMICIDE—An agent capable of destroying germs.

GLACE—A thin sugar syrup coating (or a thickened sugar mixture) used for coating pastries, cakes, and meats.

GLUCOSE—A simple sugar made by action of acid on starch. It is made chiefly from cornstarch and is usually referred to as corn syrup.

GLUTEN—The elastic protein mass that is formed when flour is mixed with water. Composed of two proteins: gliadin for elasticity and glutenin for strength.

GOULASH—(Hungarian) A national stew of Hungary, variously made in the United States of either beef, veal, or frankfurters with onions and potatoes. A covering sauce has tomato paste and paprika as ingredients. It may be served with sour cream.

GRAHAM FLOUR—Finely ground whole wheat flour.

GRAINING—Refers to the formation of crystals in a cooled sugar solution after it has been boiled. If cooling is slow, large crystals will form. Rapid cooling produces small crystals. Small, fine crystalization, desired in making fondant, is accomplished by rapid mixing during cooling.

GRATE—To pulverize food items by rubbing on the rough surface of a grater.

GREASE—To rub utensil with grease (butter or other fat) preparatory to putting a food material in it to be cooked.

GRILL—To cook, uncovered on a griddle, removing grease as it accumulates. No liquid is added.

GUMBO—A creole dish, resembling soup, that is thickened with okra, its characteristic ingredient.

HARD SAUCE—A dessert sauce made of butter and confectioners' sugar thoroughly creamed. The mixture is thinned or tempered with either boiling water or spirits.

HASH—A dish made of chopped or minced meat and/or vegetable mixture in brown stock.

HEARTH—The heated baking surface of the floor of an oven.

HERMITS—A rich short-flake cookie.

HOLLANDAISE—A hot sauce made with egg yolks and butter and served with vegetables.

HORS D'OEUVRES—(French) Light snack-type food eaten hot or cold at the beginning of a meal. These foods correspond to the Italian antipasto and the Scandinavian smorgasbord.

HOST—Any living animal or plant affording food for growth to a parasite.

HOT CROSS BUNS—A sweet, spicy, fruity bun with a cross cut on the top that is usually filled with a plain frosting.

HUMIDITY—Usually expressed as relative humidity. The capacity of air to retain moisture varies with its temperature. Thus, relative humidity is the present moisture content related to total moisture capacity for the present temperature and stated as a percent.

HUSH PUPPIES—A bread served mostly in the South with fish and is made by deep frying cornbread batter seasoned with onions.

HYDROGENATED OIL—A natural oil that has been treated with hydrogen to convert it to a hardened form.

INCUBATION PERIOD—That time between entrance of disease-producing bacteria in a person and the first appearance of symptoms.

INSECTICIDE—Any chemical substance used for the destruction of insects.

INVERT SUGAR—A mixture of dextrose and levulose made by inverting sucrose with acid or enzymes.

ITALIENNE—(French) Refers to Italian style of cooking.

JAMBALAYA—A creole rice-tomato dish with either fish, shellfish, or meat.

JARDINIERE—(French) A meat dish or a garnish, "garden" style, made of several kinds of vegetables.

JELLYWREATH—A rolled ring of basic sweet dough containing jelly.

JULIENNE—(French) A way of cutting vegetables, meat, or poultry into fine strips or shreds.

KEBAB—(Turkey) A combination of cubes of meat, usually lamb, and chunks of vegetables or fruit, placed alternately on a skewer and broiled.

KNEAD—To alternately press and turn and fold dough with the hands for the purpose of expelling gas and redistributing the yeast.

KOLACHES—(Czechoslovakia or Bohemia) A bun made from a soft dough topped with fruit, nuts, fruit-nut, or seed fillings.

LACTIC ACID—An organic acid sometimes known as the acid of milk because it is produced when milk sours. Souring is caused by bacteria.

LACTOSE—The sugar of milk.

LADY FINGERS—A cookie made with a sponge cake batter and baked in special pans.

LARDING—To cover uncooked lean meat or fish with strips of fat, or to insert strips of fat with a skewer.

LASAGNA—(Italian) A baked Italian dish with broad noodles, or lasagna macaroni, which has been cooked, drained, and combined in alternate layers with Italian meat sauce and two or three types of cheese (cottage, ricotta, parmesan, or mozzarella).

LEAVENING—Raising or lightening by air, steam, or gas (carbon dioxide). Usually, the agent for generating gas in a dough or batter is yeast or baking powder.

LEVULOSE—A simple sugar found in honey, fruits, and invert sugar.

LYONNAISE—(French) A seasoning with onions and parsley originating in Lyons, France. Sauteed potatoes, green beans, and other vegetables are seasoned this way.

MACAROON—A rich, chewy cookie made with almond paste and shredded coconut.

MACEDOINE—(French) A name derived from the country of Macedonia; refers to a mixture of fruits or vegetables used for garnish or as a cocktail.

MADRILENE—(French) A name of a clear soup; other dishes flavored with tomato juice.

MAGENTA—(Italian) A purplish shade of red produced by the use of tomato juice as, for example, in soup.

MAITRE D'HOTEL—(French) Head waiter; also a butter sauce used on fish.

MAKEUP—Manual or mechanical manipulation of dough to provide a desired size and shape.

MALT EXTRACT—A syrupy liquid obtained from malt mash; a product obtained as a result of converting the starch to sugar.

MARBLE CAKE—A cake of two or three colored batters swirled together so that the finished product retains the separate colors.

MARBLING—The intermingling of fat with lean in meat muscles. The presence or absence of marbling can be seen on the surface of meat that has been cut across the grain. The presence of marbling indicates quality and palatability of meat.

MARINATE—To cover food with a marinade (a preparation containing spices, vegetables, herbs, and a liquid, usually acid) and let stand for a period of time to enhance its flavor and improve its tenderness.

MARMALADE—A thick, pulpy jam or preserve made with crushed fruits. Marmalades made of citrus fruits contain bits of the peel.

MARZIPAN—A confection of almonds reduced to a paste with sugar and used for modeling, masking, and torte.

MASKING—To cover completely with a sauce, jelly aspic, mayonnaise, cream, icing, or frosting.

MEAT SUBSTITUTE—Any food that may be used as an entree that does not contain beef, veal, pork, or lamb. The substitutes are protein-rich dishes such as eggs, fish, dried beans, and cheese.

MELBA—A cornstarch dessert sauce most frequently used with peaches; a very thin toasted bread is called melba toast.

MELTING POINT—The temperature at which a solid becomes a liquid.

MERINGUE—A white frothy mass of beaten egg whites and sugar.

MIDDLINGS—Granular particles of the endosperm of wheat that are removed during milling.

MILANAISE—(French) Foods prepared a la milanaise contain eggs, parmesan cheese, and bread crumbs. Rice and macaroni products prepared a la milanaise may be formed into different shapes, dipped into egg batter, rolled in bread crumbs, fried, or panned and baked.

MINCE—To cut or chop into very small pieces (finer than chopped).

MINESTRONE—(Italian) Thickened vegetable soup containing lentils or beans.

MIXING—To unite two or more ingredients.

MOCHA—A variety of flavorable coffee from Mocha (Arabia) but refers to any coffee today, including the instant form. A rich butter cream icing containing cocoa and coffee essence.

MOLD—Microscopic, multicellular, threadlike fungi growing on moist surfaces or organic material.

MORNAY—A cheese sauce used principally with baked fish.

MOUSSE—(French) The word means "froth." Mousse is a cold entree (meat, poultry, or seafood mousse) or a frozen dessert. The basic ingredients are beaten eggs, whipped cream, and gelatin.

MULLIGATAWNY—(East Indian) A soup with a chicken stock base highly seasoned, chiefly by curry powder.

MYOCIDE—An agent that destroys molds.

NAPOLEON—A pastry made from choux (of puff) paste rolled very thin, baked, cooled, and layered with cream filling. Usually topped with icing or confectioners' sugar.

NEWBURG—A dish made with a cream sauce containing egg yolks and, sometimes, wine. Customarily used with seafood.

NORMANDY—(French) A province of France famous for its cuisine. Dishes prepared "a la normande or normandie" contain generous amounts of butter and/or cream.

NUTRIENT—A substance in food that the human is known to require to support life and health.

O'BRIEN—A style of preparing sauteed vegetables with diced green peppers and pimientos. (Corn O'Brien and O'Brien potatoes are examples.)

OLD DOUGH—Yeast dough that is fermentated for too long a time. It produces a baked loaf that has a dark crumb color, sour flavor, low volume, coarse grain, and tough texture.

OMELET—(or French: omellette) Eggs cooked with yolks and whites beaten together or separately and blended, depending upon the type of omelet.

PANBROIL—To cook uncovered in a hot frying pan, pouring off fat as it accumulates.

PARASITES—Organisms that live in or on a living host that they usually do not destroy.

PARBOIL—To boil in water until partially cooked.

PARE—To cut away outer covering.

PARFAIT—(French) Refers to cookery perfection but is most often associated with variously prepared desserts. The basic foundation is a sugar syrup enriched with eggs and/or cream and stabilized with gelatin. Fruits, liqueurs, or other flavorings are used with the soft mixture or with ice cream parfaits.

PARKERHOUSE ROLLS—Folded buns of fairly rich dough.

PARMESAN—(Italian) A very hard cheese originating in the Parma region of Italy.

PASTA—(or Paste) (Italian) A term referring to macaroni products, including spaghetti, noodles, and other pastes made from hard wheat (durum or semolina).

PEEL—To remove skin, using a knife or peeling machine.

PEPPER POT—A highly seasoned soup or stew.

PETITS FOURS—Small decorated squares of cake.

PICKLE—A method of preserving food by a salt and water (or vinegar) solution.

PILAF—(also Pilau) An Oriental or Turkish dish made of rice. The cooking liquid used is beef or chicken stock, mildly flavored with onions.

PIQUANT—(French) A tart, pleasantly sharp flavor. A piquant sauce or dressing contains lemon juice or vinegar.

POACH—Method of cooking food in a hot liquid that is kept just below the boiling point.

POLONAISE—(French) A garnish used on such vegetables as cauliflower, asparagus, or other dishes consisting of chopped egg and parsley. Bread crumbs may also be added.

PORCUPINES—A meat dish prepared with ground beef and rice, formed into balls, and baked.

POULTRY TERMS:

DRAWN—Killed and feathers and intestines removed.

DRESSED—Killed and feathers removed.

EVISCERATED—Dressed, drawn, and cut up ready to cook.

FIRST JOINT—Wing joint next to carcass.

GIBLETS—Heart, gizzard, and liver of poultry cooked and chopped for use in gravy. The neck and wingtips may be also used as giblets.

OYSTER MUSCLE—Tender, oval dark meat that is found in recess on either side of back, above the wings.

READY TO COOK—See Eviscerated.

SECOND JOINT—The portion of the wing between the first joint and the wingtip. Also the thigh portion of the leg.

PROOF BOX—A tightly closed box or cabinet equipped with shelves to permit the introduction of heat and humidity. Used for fermenting dough.

PROOFING PERIOD—The time during which dough rises between molding and baking.

PROVOLONI—(Italian) A cured hard cheese that has a smoky flavor.

PUFF PASTE—See choux paste.

PUREE—To press fruit, vegetables or other solid foods through a sieve, food mill, or blender; also a soup made with pureed foods combined with white sauce, cream, or stock.

QUAHAUG—(or Quahog) Indian name for hard clam.

QUICK BREADS—Bread products baked from a lean chemically leavened batter.

RABBIT—(or Rarebit) A melted cheese dish.

RACK—The unsplit rib section of lamb or veal carcass after the breast meat has been removed.

RAGOUT—(French) Stew.

RAVIOLI—(Italian) An appetizer or main dish made from meat- or cheese-filled noodle squares poached in a liquid and served with a tomato sauce.

RECONSTITUTE—The process of restoring a food to its natural structure or texture as in replacing water in a dehydrated food. Also to reheat frozen prepared foods.

REHYDRATE—To soak, cook, or use other procedures with dehydrated foods to restore water lost during drying.

RELISH—A side dish usually contrasting in flavor, color, shape, and/or texture to the main course.

RENDER—To melt fat trimmed from meats by heating slowly at low temperature.

ROAST—To cook by dry heat; usually uncovered, in an oven.

ROCKS—Small, rough-surfaced, fruited cookies made from stiff batter.

ROPE—A spoiling bacterial growth in bread experienced when the dough becomes infected with rope spores. Usually the result of poor sanitation.

ROUNDING—(Rounding-up) Shaping of dough pieces into a ball to seal surfaces and prevent bleeding (escape) of gas.

ROUX—Mixture of flour and melted fat that is used to thicken sauces, stews, and soups.

ROYAL ICING—Frosting of sugar and egg whites. Usually used for decorative work on pastries and cakes.

SAFE HOLDING TEMPERATURES—A range of cold and hot temperatures considered safe for holding potentially hazardous foods including refrigeration temperatures, 40 °F or below, and heating temperatures, 140 °F or above.

SALISBURY STEAK—A ground meat dish cooked with onions and made to resemble steak in shape. Sometimes referred to as hamburg steak.

SALLY LUNN—A bread used principally in the southern United States and named for the woman who is said to have first made it. It may be made either as a quick bread or raised with yeast; baked either in muffin tins or in a flat pan and cut into squares.

SANITIZE—Effective bactericidal treatment of clean surfaces of equipment and utensils by an established process.

SATURATION—Absorption to the limit of capacity.

SAUERBRATEN—(German) A beef pot roast cooked in a sour sauce variously prepared with spices and vinegar and sometimes served with sour cream.

SAUTE—To panfry lightly and quickly in a very little hot fat, turning frequently.

SCALD—To heat a liquid to just below the boiling point.

SCALING—(Baking term) Apportioning batter or dough according to unit of weight.

SCALLOP—To bake food, usually cut in small pieces, with a sauce or other liquid. Topping of crumbs or shredded cheese frequently used.

SCONE—A shortcake, containing raisins, that has an egg-milk wash and cinnamon topping to give a colorful, rich crust.

SCORE—To cut shallow slits or gashes in surface of food with knife, fork, or other implement.

SCOTCH BROTH—A soup made with lamb stock, barley, and vegetables.

SCOTCH WOODCOCK—An egg baked with cheese sauce and a bread crumb topping.

SEAR—To brown the surface of meat by a short application of intense heat.

SHRED—To cut or tear into thin strips or pieces using a knife or shredder.

SIFTING—Passing through fine sieve for effective blending, to remove foreign or oversize particles, and to aerate.

SIMMER—To cook in liquid at a temperature just below the boiling point (190 °-210 °F); bubbles will form slowly and break below the surface.

SINGLE SERVICE—Refers to disposable articles used for food preparation, eating, or drinking utensils constructed wholly or in part from paper or synthetic materials and intended for one-time use.

SKEWER—A wood or metal pin used to hold meat or other foods in shape while cooking.

SKIM—To remove floating matter from the surface of a liquid with a spoon, ladle, or skimmer.

SLACK DOUGH—Dough that is soft and extensible but which has lost its resiliency.

SMORGASBORD—(Swedish) A Scandinavian luncheon or supper served buffet style at which many different dishes are served, including hot and cold hors d'oeuvres, pickled vegetables and fish, assorted cheeses, jellied salads, fish, and meats.

SMOTHER—To cook in a closed container or in a close mass as smothered onions.

SNAPS—Small cookies that run flat during baking and become crisp on cooling.

SNICKER-DOODLE—A coffee cake with a crumb topping.

SOLIDIFYING POINT—Temperature at which a fluid changes to a solid.

SOUFFLE—(French) A delicate, spongy hot dish made principally of stiffly whipped egg whites. Cheese is commonly used, but other souffles include fish, meat, poultry, and vegetables. Also prepared as a dessert.

SPORE—Any of various primitive reproductive bodies (or resistant resting cells), typically one-celled and produced by certain forms of plant life, especially molds and bacteria, and by some animal microorganisms.

SPRAY DRYING—A method of dehydrating liquids by spraying them into a drying chamber into which very hot, dry air is circulated. The rapid evaporation causes a minimum of flavor change in the food.

STARCH WATER—A mixture of cornstarch and water made by boiling 1 quart of water containing 1 or 2 tablespoons of cornstarch. This mixture brushed on bread dough gives a shine to the crust after baking.

STEAM—To cook in steam with or without pressure.

STEEP—To let stand in hot liquid (below boiling temperature) to extract flavor, color, or other qualities from a specific food.

STERILIZE—To destroy microorganisms by heat, ultraviolet light, irradiation, chemicals, or antibiotics.

STEW—To simmer in enough liquid to cover solid foods.

STIR—To blend two or more ingredients with a circular motion.

STROGANOFF—A la stroganoff is a method of preparing beef with sour cream.

SUCCOTASH—A combination dish consisting of whole-grain corn and lima beans.

SUGAR—Cane or beet (sucrose)—most common, usually granulated, sweetening agent. Corn (dextrose)—a form of sugar made from cornstarch and readily fermentable. Maltose—a form of sugar obtained by germinating cereal grain. Usually supplied as a syrup. In recipes, refers to granulated unless otherwise specified.

SUKIYAKI—(Japanese) A popular Japanese dish consisting of thin slices of meat fried with onions and other vegetables, including bean sprouts and served with soy sauce containing seasoning, herbs, and spices.

TACO—(Mexican) An open-face sandwich made of fried tortillas shaped like a shell and filled with a hot meat-vegetable mixture.

TAMALE—(Mexican) A steamed dish made of cornmeal with ground beef or chicken rolled in the center, usually highly seasoned.

TARTAR SAUCE—A rich sauce made with salad dressing, onions, parsley, pickle relish, and sometimes olives and cucumbers, served with seafood.

TARTS—Small pastries with heavy fruit or cream filling.

TEMPER—To remove from freezer and place under refrigeration for a period of time sufficient to facilitate separation and handling of frozen product. Internal temperature of the food should be approximately 26° to 28°F.

TETRAZINNI—(Italian) A dish with chicken, green peppers, and onions mixed with spaghetti and served with shredded cheese.

TEXTURE—The structure, fineness or coarseness, of a baked product when a cut surface is examined.

THAW—To remove from freezer and place under refrigeration until thawed. Internal temperature should be above 30°F.

TORTE—Cake, especially of a rich variety; contains nuts, fruits, and usually very little or no flour.

TORTILLA—(Mexican) A bread made with white corn flour and water. Special techniques are used in handling the dough to roll it thin as a piecrust. It is usually baked on hot iron.

TOSS—To mix ingredients with a gentle lifting, circular motion. Usually used for salad ingredients.

TOXIN—A waste product given off by a microorganism causing contamination of food and subsequent illness in human beings.

TRICHINOSIS—A food-borne disease transmitted through pork containing a parasite, "Trichinella spirallis," or its larvae, which infects animals.

TRUSS—To bind or fasten together. Usually refers to poultry.

VACUUM DRYING—Vacuum is applied to food that causes the air and moisture inside it to expand and create bubbles (a puffing effect). The puffed product is then dried leaving a solid fragile mass. This may be crushed to reduce bulk.

VERMICELLI—(Italian) A pasta or macaroni product, slightly yellow in color, shaped like spaghetti, and very thin.

VIENNA BREAD—A hearth-type bread with heavy crisp crust, sometimes finished with seed topping.

VINAIGRETTE—(French) A mixture of oil and vinegar seasoned with salt, pepper, and herbs that is used in sauces and dressings.

VIRUS—A group of submicroscopic organisms that grow in living tissue and may produce disease in animals and plants. Viruses are smaller than bacteria and will pass through membranes or filters.

WASH—A liquid mixture brushed on the surface of a product either before or after baking. It may be composed of one or more ingredients (water, milk, starch solution, thin syrup, or eggs).

WELSH RABBIT—(English) A cheese sauce served with toasted bread or crackers.

WHEY—Liquid remaining after the removal of fat, casein, and other substances from milk.

WHIP—To beat rapidly to increase volume by incorporating air; a hand or mechanical beater of wire construction used to whip materials such as cream or egg whites to a frothy consistency.

YEAST—A microscopic plant that reproduces by budding and causes fermentation and the giving off of carbon dioxide gas; leavening agent.

YOUNG DOUGH—Yeast dough that is underfermented. This produces a baked product with a light color, tight grain, and low volume (heavy).

ZUCCHINI—(Italian) Slender green squash.

ZWIEBACK—A toast made of bread or plain coffee cake dried in a slow oven.

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